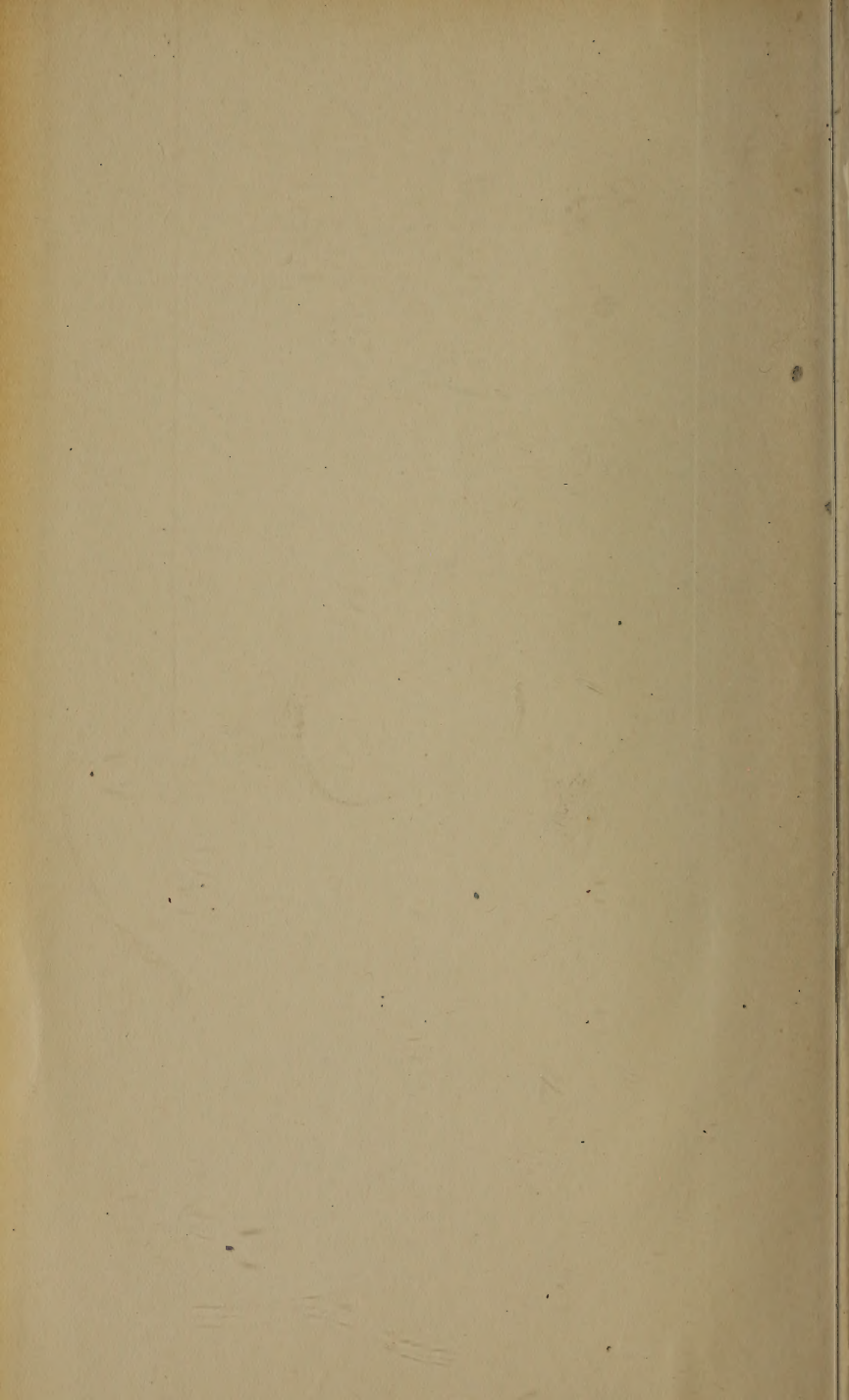




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VOL. XL.

THE POISONS USED BY DENTISTS AND THEIR ANTIDOTES.*

By CHAS. W. GLASSINGTON, M.R.C.S., L.D.S. Edin.

Mr. President and Gentlemen,—The title of my paper may sound alarming, yet the subject is one which I trust will be worth your attention.

Dental Surgeons use numerous drugs which are more or less poisonous in their nature. They keep them in a cabinet or cupboard (usually unlocked), or on a shelf. They are generally placed in a position of easy access, not only to himself, but also to any patient who may, or may not, have a suicidal tendency.

It not infrequently happens that he (the Dental Surgeon), may have to leave his surgery to have a bite taken, or a case eased, and on his return may find that his patient has “sampled” one of his drugs. Or the Dental Surgeon may have inadvertently taken up a bottle which he imagined contains some harmless liquid, instead of which it is a poison, and has applied it freely to the mouth.

Under these or any like circumstances, it is imperative he should know what to do, and I have endeavoured in the following lines to describe what should be done in such (fortunately for us) rare cases, and as I am sure those present do not want a lecture, I have tried to put my views before you

* Read before the Students' Society, National Dental Hospital.

in a manner which I trust will prove both practical and interesting.

I will presently send round some cards I have had printed, on which you will find full directions stating what to do in cases of emergency, and if you keep one in your surgery in a handy position, it may be the means of helping you out of a difficulty. In addition it will save me the time of reading it this evening, for though I am an advocate of short papers at our monthly meetings, I am afraid I should put your patience to the test were I to deal with my subject in a thorough manner. When you peruse these cards, please do not imagine they are an absolutely correct list of Antidotes to all poisons, but merely a reference for dentists, to avert what might otherwise be a fatal case.

I would draw your attention to an Antidote Case which has been kindly lent by Messrs. Burroughs, Wellcome & Co. This is of the utmost value to the general practitioner, and a dental surgeon would not be wasting his money if he invested in one.

One of its contents is the stomach-tube, which is now almost universally used in place of the old-fashioned stomach-pump. This acts as a syphon. The tube is passed down the œsophagus till it reaches the stomach, the glass funnel is held well above the head, and water is poured in till the stomach is nearly full. If the tube be pinched while full of water, and the funnel placed in a basin below the level of the stomach, the contents of that organ will be removed. This performance may be repeated three or four times till the water comes back clear and free from smell.

The Antidote case also contains a very valuable little book by Dr. Murrell, entitled "What to do in cases of poisoning." This is now in its eighth edition, which is quite sufficient proof of its great value.

Then there is a Hypodermic Syringe fitted with a cap and

two needles, one straight, one curved, and a glass mortar and pestle for dissolving "tabloids."

Every possible antidote is put up, those for hypodermic use being in "tabloid" form. The case also contains a flexible catheter.

I have also another antidote case as arranged by Mr. H. Smith, but the one I have described seems more compact, and is easier to carry about.

Then I would draw your attention to the Dental Hypodermic Case, also by Burroughs, Wellcome & Co., the contents of which, although chiefly used for the Hypodermic injection of either Cocaine or Eucaine, may be used in cases of emergency. Its contents are as follows: 1 Apomorphine. This if used hypodermically is one of the best emetics for cases of poisoning. For this purpose dissolve a "tabloid" in five minims of hot water, and inject into the upper arm. Its action is remarkably prompt and there is no after depression as with Antimony or Ipecacuanha. Should you not have a hypodermic syringe, or one that will not work, place a "tabloid" under the tongue.

2. Caffein-Sodio-Salicylate. This is a restorative, and a "tabloid" can be dissolved and injected in the same manner, in cases of poisoning by Morphine.

3. A Hypodermic Syringe with straight and curved needles. A very useful little article, the "Lachrymal needle" has recently been added. This, although nothing to do with the present subject, will be found of great use to the Dental Surgeon for cleansing root canals at the back of the mouth.

By referring to the cards which I will now ask our Secretary to pass round, you will find all necessary directions mentioned thereon for cases of emergency, but the following additional remarks may not be out of place.

Aconite. With Tincture of Aconite always remember Fleming's Tincture is five or six times as strong as that of the British Pharmacopœia.

Ammonium. Never keep the bottles containing the Aromatic Spirits of Ammonia, and the strong solution of Ammonia near each other. The latter has been given in mistake for the former. Remember when diluting sal volatile it turns milky, the strong solution does not. Do not apply the strong solution to the nostrils as a restorative, as cases of fatal bronchitis have been set up by the careless use of this remedy.

Arsenic. One is sometimes asked what should be done when this drug is used to devitalize a pulp, and some of it escapes on to the gum, and causes inflammation and sloughing of the surrounding parts. In such rare cases the local treatment would consist of warm soothing applications with antiseptic mouth washes, such as Boracic Acid, 20 grs. to one ounce of water.

Carbolic Acid and Creasote. The Sulphates of Magnesium or Sodium are given as they form sulpho-carbolates which are harmless.

Should Carbolic Acid or Creasote come in contact with the gum or cheek of your patient, apply Olive Oil freely.

Cocaine. Fatal cases from the use of this drug when injected, are rare, but very alarming symptoms have been produced at times. The best remedy consists in the free administration of stimulants.

Should the preliminary reports of Eucaine prove correct, this drug will, with advantage, entirely supercede Cocaine.

The Mineral Acids. One of the chief things to be remembered in cases of poisoning by these drugs is that the stomach-tube should not be used, as it might cause perforation of the œsophagus or stomach, if this has not already occurred.

Nitrate of Silver. When applying this in the solid form to the back of the mouth, it should be fused on a piece of platinum wire. If the stick itself is used it is liable to break and drop down the patient's throat.

Opium. When used as a soothing mouth wash in the form of a fomentation of poppy heads, be careful to tell the patient *not* to swallow any. I was once called to a case where the patient had done this, but the prompt administration of an emetic of mustard and water, and insisting on the patient being moved about, soon remedied matters.

Perchloride of Mercury. Should inflammation of the gum occur from the injudicious local use of a too strong solution of this drug, the parts may be painted with Tincture of Aconite, or a 20 per cent. solution of Cocaine to relieve pain.

Nitrous Oxide Gas. Before this is administered see that the patient has no tight clothing on, and that there are no artificial teeth, or any foreign body in the mouth. Have Nitrite of Amyl capsules at hand. Should you not possess a pair of tongue forceps, and you wish to draw the patient's tongue forward, use a pair of stump forceps. These remarks also apply to the administration of Ether.

With regard to the administration of Chloroform for tooth extraction, I hold very strong opinions, and consider it absolutely criminal to use it for this purpose. Whilst we have such a perfect, and comparatively safe anæsthetic as Nitrous Oxide Gas, I fail to see why anyone wants to use a dangerous one like Chloroform. I might here point out that with all anæsthetics, should any untoward result happen, the responsibility in most cases would rest with the administrator, not with the dental surgeon.

With the help of the cards, I think I have spoken of most of the poisoning drugs used by dentists. Time will not permit me to go into their various symptoms, but whatever these might be, you cannot go far wrong, if you first follow the directions at the beginning and end of the card.

This will give you time to look round to see what the patient might possibly have taken, and also time to consider

whether you can do anything further till medical help arrives.

The following hints may also come in useful :—

Never give up a case as hopeless, and if it is one which requires artificial respiration, keep on at it till you are absolutely sure your efforts are unavailing.

Do not hesitate to send for professional help. Remember the old saying, "Two heads are better than one."

Do not leave your patient alone after recovery.

Collect all vomited matter, and put it in a safe place.

Take notes of the case as soon as you have time.

"Prevention is better than cure," therefore keep poisonous drugs in certain shaped bottles, or in certain places, so that you may know them by the touch or position, and when they require refilling, see that the right drug is put in its proper bottle; as an example: I once sent two bottles to the chemist to be refilled, one with Peroxide of Hydrogen, the other a 20 per cent. solution of Carbolic Acid. They came back properly labelled, but the chemist had put the Peroxide into the bottle I had been accustomed to use as containing Carbolic Acid. Unaware of this I began using for a case of Rigg's disease, what I thought was the Peroxide, and was surprised to find no bubbling occurred. My first idea was that the preparation was old, but I found out my mistake before any serious mischief had occurred.

Some may say this paper is unnecessary, as cases of poisoning in the dental surgery are rare. But a case might occur to any of us. A jocular friend of mine, who heard I was going to read this paper, said it ought to be a short one, and on my asking why, replied it could be summed up in one line, "Always keep your poisons locked up."

This is very good advice, but is almost impracticable in dental surgery.

I trust none of you will ever have occasion to refer to either

the cards or an antidote case ; if so, and you are able to avert what might otherwise be a fatal case, then my efforts this evening will not have been in vain.

Whilst the paper was being read, the following card, printed in a convenient form, was handed round. Copies can be obtained on application to the Secretary of the Society, or from Mr. Glassington himself.

*What a Dental Surgeon should do in cases of
Poisoning.*

1. Send for medical assistance saying (if possible) what the patient has taken, or what has been administered.
2. If in doubt as to what poison has been taken, give an emetic of Mustard and water, or a Hypodermic injection of Apomorphine.
3. Refer to the following :—

POISONS

ANTIDOTES

Aconite.

- 1 Stomach tube.
- 2 Emetics of Mustard and water, Sulphate of Zinc, or Apomorphine.
- 3 Stimulants.
- 4 Recumbent position.
- 5 Inhalation of Nitrite of Amyl.
- 6 Artificial respiration.

Ammonia (*Strong Solution of.*)

- 1 Vinegar and water, Lemon or Orange juice, Dilute Acetic Acid and water.
- 2 Demulcent drinks.

Arsenic.

- 1 Stomach tube.
- 2 Emetics of Mustard and water, or Apomorphine.
- 3 Magnesia in large quantities or Dialysed Iron (1 ounce).
- 4 Stimulants.

Carbolic Acid and Creasote.

- 1 Stomach tube.
- 2 Emetics of Apomorphine or Mustard and water.
- 3 Epsom Salts or Glauber's Salts $\frac{1}{2}$ oz. in $\frac{1}{2}$ pint of water.
- 4 Olive Oil.
- 5 Inhalations of Nitrite of Amyl.

Caustic Potash and Caustic Soda.

- 1 Vinegar and water, Lemon or Orange juice.
- 2 Olive Oil freely.
- 3 Demulcent drinks.

Chromic Acid.

- 1 Emetics.
- 2 Stomach tube.
- 3 Chalk and milk.
- 4 Demulcent drinks.

POISONS**ANTIDOTES****Cocaine.**

- 1 Inhalations of Nitrite of Amyl.
- 2 Stimulants.
- 3 Hypodermic injection of Ether.

Copper (*Sulphate of*.)

- 1 Stomach tube.
- 2 Emetics.
- 3 Milk and Eggs *ad lib*.

Ethyl Chloride.

- 1 Fresh air.
- 2 Stimulants.
- 3 Artificial respiration.

Hydrochloric, Nitric, and Sulphuric Acids.

- 1 Soap and water.
- 2 Any Alkali.
- 3 Olive Oil.
- 4 Milk and Egg.
- 5 Hypodermic injection of Morphine, (Stomach pump NOT to be used).

Iodine.

- 1 Stomach tube.
- 2 Emetics.
- 3 Starch and water.
- 4 Inhalations of Nitrite of Amyl.

Nitrite of Silver.

- 1 Common Salt and water freely.
- 2 Emetics.
- 3 Demulcents.

Nitrite of Amyl.

- 1 Fresh air.
- 2 Recumbent position.
- 3 Artificial respiration.

Opium.

- 1 Stomach tube.
- 2 Emetics.
- 3 Keep patient moving about.
- 4 Cold douches.
- 5 Inhalations of Nitrite of Amyl.
- 6 Artificial respiration.

Oxalic Acid.

- 1 Alkalies, such as Chalk, Lime or Whiting.
- 2 Castor Oil.

Perchloride of Mercury.

- 1 Stomach tube.
- 2 Emetics.
- 3 White of Egg (unboiled).
- 4 Stimulants.

ANÆSTHETICS.**Nitrous Oxide Gas.**

- 1 Pull the tongue forward.
- 2 Fresh air.
- 3 Nitrite of Amyl.
- 4 Artificial respiration.

Ether.

Leave responsibility with anaesthetist.

Chloroform.

Never allow it to be given for tooth extraction.

IF INHALED—

- 1 Pull tongue forward.
- 2 Fresh air.
- 3 Flap chest and face with end of wet towel.
- 4 Artificial respiration.
- 5 Invert patient.
- 6 Nitrite of Amyl.

IF SWALLOWED—

- 1 Stomach tube.
- 2 Emetics.
- 3 Nitrite of Amyl.
- 4 Rouse Patient.

HANDY EMETICS.**1 Common Salt.**

One tablespoonful in half a pint of tepid water.

2 Mustard.

Two tablespoonfuls in half a pint of tepid water.

3 Put finger in the throat or irritate fauces with a feather.

THE RATIO OF OCCURRENCE OF DEFICIENT ENAMEL.

By SIDNEY SPOKES, M.R.C.S. Eng., L.D.S. Eng.

The old-fashioned terms, "ridged incisors and honey-combed molars," referring to deficient enamel might perhaps be well replaced by the term hypoplasia, as proposed by Berten, Zsigmondy and Grevers. The misleading name of "erosion" as used by Magitot at the Medical Congress in London in 1881, and by Dr. J. K. Barton, at the British Medical Association in 1895, does not convey an appropriate idea as to faulty development. The latter observer came to the conclusion that the faulty development of enamel was mainly caused by errors in feeding during the first years of life. Most are probably agreed that the defect is due to interference with the child's nutrition, and that possibly several factors exist, any one of which may bring about the disturbance.

Dr. Barton, however, mentioned that out of 202 children,

he had found ten cases in which the permanent teeth, and five in which the temporary teeth were affected ; and I remember saying at the time that 5 per cent., and $2\frac{1}{2}$ per cent. was a fair estimate, so far as one's general recollection of cases went, and without examining records. Since then I have had an opportunity of examining charts which showed the proportion of hypoplasia. There were records of 2,154 mouths to deal with, made up in the following way :—

258 College boys in one of our Public Schools.

987 Boys in a Poor-Law School.

103 Boys in a Poor-Law Ophthalmic School.

726 Girls in a Poor-Law School.

80 Girls in a Poor-Law Ophthalmic School.

As one was anxious to find the ratio of occurrence of a condition principally affecting the permanent dentition, it was necessary to take out from the above 146 boys and 104 girls who might be described as infants, thus leaving a total of 1,904. Amongst these were 147 cases in which hypoplasia was present, *i.e.*, 7·7 per cent. But they were distributed thus ;—

College Boys	...	258	12	4·6 per cent.
Poor-Law Boys	...	851	60	7·1 „
Ophthalmic Boys	...	103	17	16·5 „
Poor-Law Girls	...	622	47	7·5 „
Ophthalmic Girls	...	80	11	13·7 „

Now it seems strange [that whilst the teeth of Public School boys were only affected to the extent of 4 per cent., the children in the Ophthalmic Poor-Law School showed 15 per cent., and each class was examined with equal care. Must we not find an explanation in the fact that the former in early life were not subjected to the same extent to the causes which

may produce hypoplasia? But now, leaving the well-to-do class out for the moment, let us compare the ophthalmic children with the children in the ordinary Poor-Law School. The latter come from the City, and St. Saviour's Parish, Southwark, and show a percentage of 7 per cent., much higher than the Collegians, but not half that of the children seen in the Poor-Law Ophthalmic School. Although most of the ophthalmic children come from such parishes as Mile End, Poplar, and Bethnal Green, and probably from a class lower than do those in the City, yet one can scarcely think that all the difference is due to this. There might be some temptation to try and establish a relationship between a tendency to eye affections and hypoplastic teeth, but the circumstances will hardly warrant this, and one prefers to leave the discrepancy unexplained.

Now, in taking out the above figures of enamel defects, I have only included those which refer to the ordinary ridged or pitted incisors and honeycombed molars, which showed more or less regularly, the tide-marks on the crowns of the teeth produced by some constitutional disturbance. But one also noticed instances where bicuspid shared in the defect. Although this is considered rare, one finds noted in these records 12 such instances: and it may be mentioned that, although some deny that any later teeth are affected, Berten, of Wurtzburg, has recorded three cases where the second molars were affected, and Witzel claims to have observed hypoplasia of the third molars. Berten thinks the reason why the later teeth are seldom affected is due to the fact that there is a greater resistance on the part of the individual to the causes of hypoplasia. In one of our cases, where all four first bicuspid were affected, it is noted that the "tide-mark" on the central incisors was high up at the neck, which is what one would expect. But no one can observe many instances of hypoplasia without noticing that

the regularity of the tide-mark does not always coincide with the usually accepted ideas. Although one found 27 cases in which the upper laterals had escaped, the following were also noted :—Upper canines escaped, centrals and laterals affected, and cases of the molars escaping ; and on the other hand, where they were alone affected.

It should be pointed out that one has not included, in the cases tabulated above, instances which the writer regards as teeth modified in form (suppression of cusps) by syphilis, but not ridged or pitted as in ordinary hypoplasia. Six cases where molar crowns were "modified," one with the upper centrals so affected, and two cases of the true Hutchinsonian type were met with. In four other cases diagnosed as subjects of hereditary syphilis, the incisors and molars generally were modified ; and in one, the incisors were peg-shaped, with the left upper central and right lower lateral incisors notched.

Other cases of enamel defects, not included in the figures, were those where a single bicuspid had deficient enamel. This is not infrequent ; and the extent of the defect may vary from a pit or patch to a total absence of enamel. It has been suggested that a local origin, rather than a constitutional one, should be looked for in such cases, and a plausible explanation has been found in the shocking state in which abscessed temporary molars are sometimes found. It does look as if this might account for the enamel defect in the bicuspid developing beneath, but curiously enough, in none of the 37 instances met with did the records (many extending back four years) show that the molar, which preceded the bicuspid was abscessed. On the other hand, one counted seven or eight instances in which abscessed temporary molars were followed by bicuspid with perfectly sound enamel. In case any one wishes to hazard a guess as to a possible cause, it may be mentioned that the distribution of these faulty

bicuspid was eight in the upper jaw, and 29 in the lower, where the right second bicuspid provided 11 instances, and the left second bicuspid 9.

B ²	B ¹		B ¹	B ²
2	1		4	1
<hr/>				
B ₂	B ₁		B ₁	B ₂
11	6		3	9

With regard to hypoplasia affecting the temporary teeth, the 250 "infants" produced fifteen cases, exactly 6 per cent. whilst among the older children, with permanent incisors and molars, but also with temporary canines and molars present, there were 10 instances of hypoplastic temporary teeth. Whatever the cause may be in these cases, it must occur *in utero*; and it may be suggested that the prolonged attacks of the vomiting of pregnancy, which sometimes make their appearance as late as the seventh month, may so interfere with the nutrition of the mother as to affect the developing teeth of the foetus.

THE FIRST SURGICAL OPERATION.—When Sir James Simpson first introduced the use of chloroform he was roundly denounced by many of the clergy, who said it was impious, and contrary to Holy Writ. It was said that its use was to avoid one part of the primeval curse on woman. "In sorrow shalt thou bring forth children." Replying to his theological opponents, Sir James said, "They forget the 21st verse of Genesis ii. That is the record of the first surgical operation ever performed, and that text proves that the Maker of the universe before He took the rib from Adam's side for the creation of Eve, caused a deep sleep to fall upon Adam."

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LONDON, JAN. 1, 1897.

A GLANCE AROUND.

The New Year has always been a favourable opportunity for looking round, for settling affairs, for taking stock, and for forming plans and resolutions for the coming year. Pepys writes two hundred and thirty years ago, "Soon as ever the clock struck one, I kissed my wife in the kitchen by the fireside, wishing her a merry new yeare. So ends the old yeare, I bless God, with great joy to me, not only from my having made so good a yeare of profit, but I have never been in so good a plight as to my health as I am at this day." He is at a loss to know whether this good health arose from "my hare's foot," (which he wore as a charm against the colic) or "taking every morning of a pill of turpentine." He then makes his usual resolutions to abstain from too much wine, theatre-going and other besetting sins, which vows, alas! he invariably broke before many weeks were spent.

We will follow the example of the inimitable Diarist in summing up the work of the past year, and in seeing where we stand. The JOURNAL has done its best to give a full and true account of all that it considered of interest and value to its many readers during the past year. The various prosecutions under the Dentists' Act of unregistered practitioners holding themselves out to be specially qualified have been almost uniformly successful. One case fell through, however, owing to carelessness; the Dentists' Register, which ought to have been brought forward as evidence for the prosecution, not being forthcoming. Another attack which the Act may be

called upon to withstand may be one brought by the *Chemist and Druggist* to test its wording. That journal is of opinion that we are claiming more from the Act than the words justify. If it is ill-advised enough to take a test case to the High Court we can only await the result with calm confidence. An important decision as regards the Limited Companies' Act has forced public opinion to see the possible abuse of the Act, and we hope that the promised Amendment will be one of the fruits of this year's legislation. The College of Surgeons has decided to enlarge the scope of the L.D.S.Eng., and the Candidate, before long, will be obliged to pass three separate examinations at intervals. The Preliminary examination too, will be gradually made more searching, and after 1900 will be re-constituted, most probably. A large number of deaths due to chloroform has occurred, and the medical profession are gradually coming round to the opinion of anæsthetic specialists, that this dangerous drug should as much as possible be shelved in favour of ether and gas. Arising out of one of these cases we have seen the acquittal of a "herbalist and maker of artificial teeth" who in many other countries would have paid the penalty due to manslaughter. We can only hope and work for an Amendment of the Medical Acts, so as to afford protection to the ignorant.

The work of the General Medical Council has not been without issue. It has been clearly brought home to the profession by the Sanders case that an unqualified assistant can only be left in charge of the mechanical department of a practice, and must not engage in operative work in his employer's absence. In the law courts, one or two cases of extortionate charges by dentists have ended in the victory of the patient. We hope these trials will enable the public to see that those who advertise special and secret methods are often unprincipled charlatans. In the scientific world the year has been marked by two celebrations; the Jenner centenary and the Ether Jubilee. Neither of these events were commemorated by this country in an adequate manner. The X rays of Pro-

fessor Röntgen have proved to be of signal service to surgery, and their power and interest seems to be on the increase rather than on the wane. As regards our own speciality, the investigation of Black and Tomes respectively, into the structure of tooth tissues, with a view to discovering why they fail, have been most interesting, and some of the conclusions somewhat startling. We await further results in these as also in other experiments which the latter scientist has been conducting on amalgams. The ingenious theory of the blood pressure being an important factor in assisting the eruption of teeth, brought forward by Mr. Constant, is also a noteworthy circumstance. Dentistry abroad seems to show an improvement all round, and an increase in the professional spirit. New South Wales will soon join the other Colonies in possessing a Dentists' Act, while our editorials concerning our brethren in France and Japan, will have given some idea of what is being done in those countries. The obituary contains some honoured names. Gaps made by men like Humphrey, Erichsen, and Richardson are not easily filled, while the sad death of Paul Dubois has removed a leading spirit from the ranks of our French brethren. In wishing our friends a Happy New Year we hope that, like Pepys, they may have "a good yeare of profit" and be "in a good plight as to their health."

THE DENTISTS' ACT AND CHEMISTS.—The *Chemist and Druggist*, which talks of bringing a case to the Courts to test the scope of the Dentists' Act, is very indignant at our Editorial of December 1st. The extract from our article is as follows :—

"A few weeks ago we pointed out the fact that the *Chemist and Druggist* wished to place its own construction on the Dentists' Act in favour of chemists who illegally held themselves out to be specially qualified to practise dentistry. What with this attack, and the recent decision concerning companies, the Dentists' Act would seem to be in danger of becoming a dead letter, and the unqualified and unprincipled adventurer has the way smoothed in his competition with the

man who has laboriously trodden in the straight and narrow way of professional curriculum and professional uprightness."

This is the comment of our contemporary—

"Could our claim be more inaccurately stated? We say the dentists are claiming more from their Act than its words justify, and we ask for a High Court decision on the point. They say we want to place our own construction on the Act in favour of chemists who are acting 'illegally.' If they are, the High Court will soon tell us. We note that the *B. J. D. S.* does not seem to have much hope that the Act could resist our attack."

OUR REPLY.—Evidently the *Chemist and Druggist* does not read our JOURNAL regularly. Why should it? We have so little in common if each profession attends to its own business. However, if it had read our article of October 15th, it would have seen that we consider its action "is morally as well as legally wrong." Furthermore, we expressed the opinion that "if the test case is ever entered upon, we may anticipate the result with calmness and with confidence." We also expressly stated that "no one can interfere with a chemist or anyone else who extracts teeth, but if he holds himself out or leads the public to suppose that he is qualified by law to perform dental operations, he brings himself within the scope of the Dentists' Act." Can anything be clearer than our position?

THIRD DENTITION AGAIN!—A myth that wishes to preserve its vitality and keep before the public as a going concern, must from time to time bring forward some startling proof of its existence. Our old friend the third dentition myth is evidently aware of this necessity, for the latest story is that of an old lady (it is generally an old lady) who "cut an entire new set above and below, but the thing that must seem beyond belief, and which is yet true, is that one of the new teeth had a gold filling in it." And yet they say we do not live in an imaginative age.

SCHOOL DENTISTS.—We see that at a meeting of the Nottingham Board of Guardians, one of their members, Miss Hine, suggested that a request be made for the provision of a report by the School Committee on the work done by the dentist since his appointment. The matter was referred to the School Committee. We are strongly of opinion that such a report should always be rigorously kept and issued by every dentist under Boards of Guardians. Such statistics are of the greatest value not only from a scientific standpoint but also for the purpose of educating the public as to the value of their teeth and the importance of dental aid at the time of life when such services are of the greatest benefit. We are glad to see that the Burnley Board of Guardians is following the good example of several others, and has just appointed a dental surgeon.

PROTECTION FOR THE UNWARY.—Mr. Justice Kekewich in a recent decision in an action brought for an infringement of a name appropriated by a manufacturer to designate his make of bicycles, said, "it was the unwary purchaser that the Court protected." This is all we ask from the Legislature as regards the Dentists' Act. We only require that the law be administered so that the "unwary purchaser" of dental skill shall not fall into the hands of the specious quack who holding himself out to be specially qualified, trades on popular ignorance. The principle of "caveat emptor" can be, and in many cases has been, carried too far.

THE NEW SPELLING.—Dr. Gould, of Philadelphia, wants to reform spelling all round. He would abolish diphthongs, useless hyphens, "te" and "me" from words like etiquette and programme; he would use figures instead of spelling out numbers, Anglicise foreign terms, drop the final *e* in "chemic" terms, (such as bromide,) abolish all diacritics and accents, and not bother about hybrid terms,—"it is only finicky sticklers that are horrified by hybrid words." Evidently things are in a bad way, but what is the reason that

they have continued so for so long? Dr. Gould replies—"Ignorance, colossal, imperturbable, impertinent ignorance is characteristic of much of it. Read, for example, the letters in the *British Medical Journal* from correspondents, and you will see these objectors haven't studied philology five minutes in their lives, and are living in an antediluvian world. But again, consider the source, I beg of you, and you will very often find that it is the secret influence of the commercial medical publisher that is at work. He publishes a dictionary committed to the old ways, and hence prints his medical journals and books in the archaic language of his dictionary. It means expense and loss of money to him in very many ways to have his 'authorities' supplanted." We feel no desire at present to wriggle from under the yoke of the commercial medical publisher, and prefer to be classed amongst the antediluvians and "finicky sticklers."

The following is the copy of an advertisement which appeared in the first number of the *Birmingham Gazette*, published November 16th, 1741 :—

"This is to give Notice, that Robert Law, who has been instructed for fourteen years by that ingenious Mechanick Mr. John Dappe, of London, and now living near the White Hart, in Digbeth, Birmingham, makes it his entire Practice to make all Sorts of Machines for crooked and deformed Limbs, Weakness or Lameness in any part of the Body, neat Steel Collars for young Ladies, Neckswings, Steel Stays, Leg Machines, with all Sorts of Steel Trusses, and for both sexes, being so well fitted to human Bodies as to be endured by the youngest Infants, and very effectual to relieve the Aged for the Cure of any Rupture or broken Bellies, whether in the Scrotum, Navel, or Groin, with other Applications proper for either Sex; also laced Stockings and Bandages for any Part of the Body, together with Artificial Teeth, made to the greatest perfection, so artfully fixed as to endure for years without taking out; he neatly cleanseth

the Teeth, taking away all tartarous Scales, or flimsy or muddy Humour, also hardened or fasteneth those that are loose.

N.B. He can supply those who live at a Distance with Trusses, they sending an Account of their Bigness round, and which side the Rupture is.

ETHICS IN ADELAIDE.—A correspondent to the *British Medical Journal* gives the following description of the manners and customs of medical men in Adelaide.

“We find ourselves in a country where professional courtesy and etiquette, as known at home, do not exist; where every medical man has his hours in the telephone list or on his big brass or other plate at his gate or all over his door, or at one or more chemists’ shops; his advertisement in the newspapers that he has started practice, or has changed his consulting hours; his newspaper paragraphs that So-and-so, whom he is attending, is better or worse, or likely to die; where specialists practise for general fees, and hospital surgeons attend major and minor surgery and measles indiscriminately—all under sanction of the local Branch of the British Medical Association.”

The following circular regarding a proprietary tooth-paste has just been issued by a native firm in Japan. “In the East there was no good sanitary tooth-paste that was sure to cure and safe to use, so our company resolved to prepare a good-natured paste and succeeded. The efficiencies of this paste are as follows: Firstly, to strengthen and preserve the nature of the tooth; secondly, to tight the tooth with thin-gams; thirdly, to prevent a hemonhage arisen by frictrir; fourthly, to take away the offensive smell of the mouth; fifthly, to difend the putrefaction of tooth, and so prevent the carious one. Anyone who uses this paste will certainly discover that it is of avery wordrful and valuable nature by this practice. To use this paste it is necessary to vinese the mouth with walir aftr sabling the tooth carefully by the tooth brash.”

Pharmaceutical Era.

Abstracts of British & Foreign Journals.

CURRENT VIEWS ON ANÆSTHESIA.

By HENRY DAVIS, M.R.C.S.

There is no subject in the history of medicine more engrossing than that of the "escape from pain" furnished by ether and chloroform. Men may well ask, what would have been the position of surgery without these beneficent fluids?—as a matter of fact there was little that could be called operative surgery before the era of anæsthetics.

Those who enter the profession in 1896, may well express wonder and astonishment that the introduction of ether and chloroform met with violent opposition; this has been true of all great and wonder-working inventions and discoveries. Those work-people who were opposed to spinning machinery and similar inventions would never have been guilty of such wanton acts of destruction if they could have foreseen that in years to come English looms would provide work for many hundred thousands of operatives. Could Morton have seen, even in a vision, that ether would be administered in every large town to scores of individuals daily, he surely would not have died "a broken and disappointed man." The inscription on the monument over his grave in Mount Auburn Cemetery, near Boston, and erected by "citizens of Boston," is probably one of the most eloquent tributes in the world:—"Inventor and Revealer of anæsthetic inhalation, by whom pain in surgery was averted and annulled, before whom, in all time, surgery was agony, since whom science has control of pain."

The introduction of the rival anæsthetic, chloroform, in no way detracts from the invention of ether, but for many years it led to a sort of rivalry in which the bias of patriotism had some share; the Americans continually urging the superior claims of ether, and British operators standing fast by chloroform. Happily however, the inventive faculty of Clover led to the abandonment of the old fashioned cone: his ingenious apparatus had a great effect in promoting the use of ether and especially the plan of employing nitrous-oxide gas for the

preliminary stages. Now it may be safely asserted that the routine agent employed by every anæsthetist of experience in London is ether. Moreover, since surgeons have recognized the greater safety of this agent, and find that they can perform almost all the major operations under ether narcosis they insist on its use.

It is used in abdominal operations where it was formerly regarded as contraindicated and age limit is now no barrier, as ether may be given to very young children and octogenarians with the utmost safety.

Another factor which has tended to place ether in higher favour is the fact that the profession has come to regard the administration of anæsthetics as a proceeding requiring care and experience, and the public demand that unconsciousness shall be produced by men of training and skill.

In most Metropolitan Hospitals, the student receives training in this branch of Medical art with the same care that he is taught vaccination, midwifery, and the like, and no man is allowed to fill a residential post until he can produce a certificate of proficiency in this important duty. In time, such a certificate should be demanded of every man seeking a diploma, as rigorously as he is expected to furnish evidence that he has attended twenty labours.

For many years there has been a stern race for supremacy between ether and chloroform; experimental evidence in this country has favoured, undoubtedly, the greater safety of ether—the latest contribution to this subject being the able and valuable research of Dr. Waller, referred to in the issue of this *Gazette* for December, 1895, and since published elsewhere.

Now it may be said that ether wins all along the line, and the most striking argument in support of its superiority over chloroform is the fact that in this great Metropolis, every professed Anæsthetist administers ether as the routine agent for producing anæsthesia, on account of its absolute safety, whilst it produces anæsthesia as profound as that induced by chloroform, and as quickly.

It has taken fifty years to bring this condition of things about, but it is one of the most important features to bear in mind in this *Jubilee of Anæsthesia*.

St. Mary's Hospital Gazette.

SURPRISES AND MISTAKES.

By WILLIAM THOMSON, F.R.C.S., Ireland.

In the early part of this year I saw a gentleman who was suffering from a growth in the nose. I recommended him to see Dr. Woods, and I saw him later on with Sir Thornley Stoker and Dr. Woods. We came to the conclusion that he was suffering from a malignant tumour of the antrum which had extended to the nose. We recommended an exploratory operation, and if our opinion was confirmed, that the jaw should be at once removed. He refused the larger operation. The exploration was made by Dr. Woods. We found that the tumour did extend from the antrum, into which I could bore my finger easily. Dr. O'Sullivan, Professor of Pathology in Trinity College, declared the growth to be a round-celled sarcoma; of that there is no doubt. The tumour returned in a couple of months, and the patient then saw Dr. Semon in London, who advised immediate removal of the jaw. He returned home, and after a further delay he asked to have the operation performed. I did this in May last by the usual method. I found the tumour occupying the whole of the antrum. The base of the skull was everywhere infiltrated. The tumour had passed into the right nose, and perforated the septum so as to extend into the left; it adhered to the septum around the site of perforation. This was all removed, leaving a hole in the septum about the size of a florin. He went home within a fortnight. In a month the growth showed signs of return; it bulged through the incision and protruded upon the face. Dr. Woods saw him soon afterwards, as I had declared by letter that a further operation would be of no avail. The tumour had now almost closed the right eye; it was blue, tense, firm, lobulated, but it did not break. Dr. Woods reported the result of his visit to me, and we agreed as to the prognosis. Early in October the patient walked into my study after a visit to Dr. Woods. He looked in better health than I had ever seen him. The tumour had completely disappeared from the face, and I could not identify any trace of it in the mouth. He said he had no pain of any kind. He could speak well when the opening remaining after the removal of the hard palate was plugged, and he was in town to have an obturator made. He has since

gone home apparently well. He told me he had applied poultices of comfrey root, and that the swelling had gradually disappeared.

Now this was a case of which none of us had any doubt at all, and our first view was confirmed by the distinguished pathologist whom I have mentioned, and by our own observation at the time of the major operation.

Here then, was another "surprise." I am as satisfied as I can be of anything that the growth was malignant and of a bad type. Of course we know in the history of some tumours that growth is delayed, and that in the sarcomata recurrence is often late. But this is a case in which the recurrence occurred twice—the second time to an extreme degree; and yet this recurrent tumour has vanished. What has produced this atrophy and disappearance? I do not know. I know nothing of the effects of comfrey root, but I do not believe that it can remove a sarcomatous tumour. Of course the time that has so far elapsed is very short; but the fact that this big recurrent growth no longer exists—that it has not ulcerated or sloughed away, but simply, with unbroken covering disappeared—is to me one of the greatest "surprises" and puzzles that I have met with.

But let me turn to the other topic upon which I have still to speak to you—"mistakes." I confess to having made some in my life. It is often complained that we hear much of the successes of surgery and medicine, but little of the failures and hardly ever of the errors. I am not ashamed to say that I have erred in diagnosis, and I know that I have seen others blunder too. When one is in that unpleasant predicament it is satisfactory to know that he is in good company—always supposing that the patient does not suffer from his default. I am afraid that there are none who can truly claim omniscience, although they sometimes look as if they did. But so long as surgery is what it is, errors will be committed; and perhaps it would help to make them less if we were only courageous enough to say so; to point out wherein we failed and to give some warning to others which might help to save them from mistakes.

In 1892 a gentleman consulted me for a bad throat. He was aged 75, and his story was that his throat had been sore for about two months. He spoke with a marked nasal tone. I found the right soft palate and a considerable part of the hard palate occupied by a malignant looking flattened growth projecting from the surface about an eighth of an inch. There

was an ulcer on the free margin of the palate extending to the tonsil. Externally at the angle of the jaw was a mass of enlarged glands, fixed, and without pain. There had been a good deal of sanious discharge from the nostril, and the posterior naris was blocked by pressure of the engaged tissues. The structures over the alveolar process of the upper jaw, at the posterior part, were infiltrated and resisting. I had no doubt that it was a malignant growth, and I said so. I advised that nothing should be done save the use of a simple antiseptic lotion. Two months later I had a letter to say that a necrosis had set in in the parts, and that the whole engaged structures had sloughed away. The foetor was described by Dr. Rutherford as so abominable that he could not stay in the room many minutes. But in the result the ragged chasm left granulated and healed, and the patient is alive to-day at the age of 79.

Now here was a "mistake" fortunately corrected by Nature. I had no doubt that my diagnosis was right, but it must have been wrong. Sometimes it is true, such endings have been noticed in the case of sarcomatous growths, but this was, I believed an epithelioma, and I have not heard of such happy endings in cases of that class. I can only say that probably others would have judged as I did, and that the evidence seemed strong enough to justify my opinion. But although the growth presented the ordinary clinical characters of epithelioma, and gave evidence of secondary deposit, it is, I think, obvious that it was not of that character. The possibility of its having been a gumma, which ultimately broke down and sloughed away, is of course, to be considered although, in the particular case, I have reason for believing that there was no syphilitic history. Still I regard it as an error, and I have so scored it against myself.

British Medical Journal.

The "busy man" who is your patient, in his rush for dollars, will insist upon visiting his dentist at a time when he cannot do anything else. He wants an hour very early in the morning or late in the afternoon, "Can't come any other time," he says. Do not let this man have his way. Have your office hours and keep them, but do not let any man run your business or get in your office out of office hours, except in an emergency.

QUACKS IN GERMANY.

There is at least one thing which they manage better in Germany than with us, and that is the "short way" they have of dealing with quacks. Dr. Volbeding, of Düsseldorf, has just been sentenced to four years' imprisonment, a fine of £150, and five years' loss of the rights of citizenship, a sentence which, severe as it is, seems almost inadequate in consideration of the disgraceful career of quackery that has called it forth. Dr. Volbeding had a set of variously coloured nostrums that were dispensed for every sort of disease; his "consultations" and "cures" were carried on by correspondence, and, as the race of the gullible never dies out the number of applicants was enormous, and as besides, Dr. Volbeding was not fond of work, but preferred travelling in the society of ladies, the task of reading and answering the letters and prescribing was chiefly left to two so-called assistants, in reality, uneducated menservants. A favourite trick was to remit half the fee for a testimonial of "cure" effected and each publication of such bogus testimonials brought shoals of fresh victims. That incalculable harm was done is certain, but of course it was almost impossible to track the connection of cause and effect legally. However, in one case death was proved to have been caused, and bribery and fraud were also fully proved. In the course of the trial Dr. Volbeding had the impertinence to cite Professor Virchow as having declared one of his (Volbeding's) patients suffering from cancer of the larynx to be cured by his remedies. The late Emperor Frederick's name and sad case, and Dr. Virchow's microscopic examinations were also cited. Virchow has published a simple denial in the papers.

British Medical Journal.

EUCAINE A SUBSTITUTE FOR COCAINE,

De Mets has made comparative trials of eucaine and cocaine upon healthy eyes, using a 2 per cent solution of the hydrochlorate in each case. Eucaine is a derivative of cocaine, and occurs as a white neutral bitter powder, soluble in water, and not decomposed on boiling. Hence its solutions can be sterilised, an advantage which cocaine does not possess. Since its solutions are modified and rendered less active by this treatment

The instillation of it is a little more disagreeable than that of cocaine, the smarting is greater and lasts longer. It does not produce the marked vasoconstriction of cocaine: thus the eye instead of becoming white as if frozen, is usually slightly injected. When with cocaine the ocular conjunctiva become exsanguine and the eyeball is projected forward, the pupils being widely dilated through suppression, at any rate to some degree of the lid reflex, anæsthesia is at its maximum and the moment for operation has arrived. With eucaïne the eye preserves its normal aspect, and the palpebral chink remains invariable without forward protrusion of the eyeball; anæsthesia to pain is produced at least as strongly with eucaïne when tactile sensibility appears less effected. Its action is first manifested seven minutes after instillation; it lasts twenty to thirty minutes, the maximum being reached at about fifteen minutes. The author considers its anæsthetic action strong and sure. It does not produce mydriasis; hence it is valuable in cases of operation for glaucoma, where the mydriasis of cocaine is inconvenient. De Mets finds a mixture of 3 parts eucaïne to 1 part cocaine, of whatever strength, very useful. It is superior to cocaine in affections of the throat and nose, it being far less toxic as regards the heart and circulation; and it is indicated in dentistry because it does not produce an infiltration and œdema like those of cocaine. This absence of toxicity must also be considered as regards ophthalmic surgery. Besides corneal ulcerations other more grave and even fatal sequelæ have been recorded after cocaine instillations.

British Medical Journal.

SALIVARY DIGESTION.

Recent experiments to determine the effect of saliva upon starch, under different conditions, especially the admixture of acids with other food substances, show among other results, that "oxalic acid and vinegar are so strongly inhibitory of salivary digestion that they are wholly unfit to be taken with food. The greatly less, yet distinct action of the acids of sour fruits in hindering the action of saliva upon starch explains the reason why so many persons with weak digestion are unable to take acid fruits in connection with farinaceous foods."

Odontographic Journal.

TIN AND GOLD.

I recommend five parts of gold to one of tin, as follows : One sheet of Abbey's non-cohesive gold foil No 6 ; on this lay a sheet of No. 4 ; on this a sheet of tin foil, No. 4 : on this another sheet Abbey's non-cohesive gold No. 4, and another sheet of No. 6. Cut into strips, crimp and cut into pieces a little longer than the depth of the cavity. Roll some into cylinders ; use others, left open, in starting the filling. If the cavity is left open from the grinding surface finish with cohesive gold, with a few pieces of crystal mat gold first. In very deep cavities first insert a piece of asbestos saturated with cinnamon oil and cover with Robinson's fibrous foil.

Wm. A. Spring, Dresden, Germany.

SENSITIVE DENTINE OBTUNDENT.

At a recent meeting of the Stomatological Club of San Francisco, Dr. M. W. Levkowitz made an exhibit of a saturated solution of potassium carbonate in glycerin for correcting sensitivity of the dentine. The following discussion, appearing in the *Pacific Coast Dentist*, seems to confirm the Doctor's claims.

Dr. Clyde Payne: I had occasion to use carbonate of potassium yesterday in a cavity of a cuspid: I could not even ligature on account of its sensitiveness. In a few minutes I applied the clamp and put on the rubber, then applying it again to the cavity I was enabled to excavate thoroughly, the patient claiming that it did not give her any pain at all.

Southern Dental Journal.

A METHOD OF SEPARATING TEETH.

By F. EWING ROACH, D.D.S. Chicago.

An easy method of separating the anterior teeth for filling cavities that do not involve the cutting edge is to insert a thin wedge-shaped instrument between teeth to be separated, lingually, near the cutting edge ; press slowly and firmly, continue till desired space is obtained. With an orange-wood wedge gently pressed to place at gingival margin, remove the wedge instrument ; you have no mechanical separators in the way, nor have you given your patient much pain.

DEATH UNDER CHLOROFORM.

A case of death under chloroform anæsthesia occurred recently at Wolverhampton. The patient was a woman of 32, who had been suffering from indigestion for six or seven weeks. Her teeth were in an extremely bad state, only eight of them being sound. Her dentist, Mr. William Owen, considered that the remainder were so diseased as to necessitate removal, and as the operation was one likely to be of some duration, called in Dr. Montfort Nicklin, her medical attendant, to administer chloroform, which was accordingly done. Dr. Nicklin examined the heart first, and then gave chloroform in the usual manner upon lint. The extraction lasted about ten minutes, during which not more than 2 ounces of the anæsthetic were given. At the end of the operation the patient became collapsed, and in spite of injections and artificial respiration, which was kept up for two hours, succumbed. It is not quite clear from the account in the lay press whether the fatal event resulted from cardiac or respiratory failure, but Mr. C. A. Newnham, who made the *post mortem* examination, found a condition of cardiac weakness, which he stated could not have been detected during life. The stomach was distended (?dilated) but empty, and he suggested that it might have been better if the patient had been given food and stimulants before the operation. This suggestion was emphasized by the coroner, but certainly does not accord with the general opinion of anæsthetists. The jury returned a verdict in accordance with the medical evidence, and the coroner pointed out that every care appeared to have been taken, and also that both doctor and dentist were men of exceptionally large experience, and that neither of them had previously met with a case of death under an anæsthetic.

British Medical Journal.

MOUTH-WASH.

R. Acid. Carbolic. pur., grs. xx.
 Acid. Boric., ʒij.
 Thymol. gr. j.
 Ess. Menth. Pip., m x.
 Tinct. Anisi, ʒj.
 Aq. ad ʒvj.

S. A few drops in water.

OPERATIVE TREATMENT OF FACIAL
NEURALGIA.

Tiffany (*Annals of Surgery*, November, 1896) publishes an analysis of 101 cases of facial neuralgia treated by intracranial operation. Of these nearly two-thirds were subjected to the Hartley-Krause method, and nearly one fourth to that of Rose. Of these cases 24 were fatal, including one in which the patient died three minutes after the operation from cerebral abscess. Shock and sepsis, it is shown, are the chief causes of death. The author in discussing the result of surgical treatment in the cases of recovery, asserts that intracranial excision of branches of the fifth nerve relieves pain, certainly for a time, and perhaps permanently; but pain may recur, possibly in the territory subject to the excised branch, possibly in other branches. Recurrence of pain after known removal of the ganglion of Gasser is not recorded. The expediency of removing the whole of the ganglion is questioned. The first branch it is stated, is never affected alone, and trouble of one kind or another in the eyeball has been often met with after removal of the first division of the fifth nerve. It is well, in the author's opinion, not to take away the upper portion of the ganglion and the first branch, but rather to remove the second and third branches with the corresponding portion of the ganglion. The following suggestions are made with the object of assisting the surgeon in his decision with regard to the necessity of a central operation in a case of facial neuralgia: An intracranial operation is indicated if more than one branch of the fifth nerve is affected; if the painful area receives filaments from the branches near their exit from the head; if the pain is not the expression of a constitutional disorder; if a cause central to the ganglion does not exist; if other measures have failed to give relief. The intercranial operation which should be done is removal of the lower two-thirds of the Gasserian ganglion, together with the second and third branches as far as their foramina of exit from the skull, all in one piece, so as to be certain of the amount of tissue taken away.

British Medical Journal.

SOME PRACTICAL POINTS IN PORCELAIN WORK.

By Dr. A. C. McALPIN.

Porcelain work well done is very durable and artistic in appearance ; done badly, it is more apparently discreditable to the operator than any other class of work in operative dentistry.

A conspicuous and radical fault found in porcelain operations is the carelessness with which colours are selected, the universal tendency being to choose too light and too yellow shades. The operator, disregarding the habits of his patient with regard to his teeth, selects porcelain facings and fillings to match the newly-polished or dry teeth, when oftentimes he well knows that the patient will allow the teeth to lapse into the old condition, and that the porcelain will not gather a like deposit with the natural teeth. A highly glazed porcelain facing on a crown should rarely be left. It may be remedied by deadening the surface with sand-paper disks, and polishing with buff and pumice. In porcelain fillings the colour of the cement used as the retaining medium influences the shade, and care must be taken in its selection.

The operator in porcelain work should abandon small approximal fillings, and confine himself to labial fillings, conspicuous corners, and tips on teeth eroded or worn to cup shape. A porcelain filling involves the preparation of the cavity in such a way that the matrix can be easily withdrawn, without affecting its shape, and the completed filling can be inserted. Very acute marginal angles in the fillings should be avoided.

The use of separators enters largely in the successful insertion of approximal fillings, and simplifies an operation when many times it would seem impossible to insert the filling with a sufficient body to it for anchorage.

PULP CAPPING.—Dissolve sufficient gutta-percha in chloroform to half fill an ounce vial.

Add—

Oil of cloves.....	20 m.
Tannin.....	10 gr.
Carb. acid.....	20 m.

Seal and shake till satisfied of a perfect mixture. Then open and allow the chloroform to evaporate. There will remain a putty-like mass, which is always ready for application.

Reports of Societies.

NATIONAL DENTAL HOSPITAL STUDENTS' SOCIETY.

A meeting of this Society was held on Friday, December 4th, at 8 o'clock. The President, T. G. Read, Esq., was in the chair.

The minutes of the last ordinary meeting were read and confirmed, and the usual welcome was given to visitors.

Upon Casual Communications being called for,

Mr. H. ROSE showed an interesting series of lantern slides of a case of open bite which he had treated. The girl, æt. 19, only had five teeth which opposed one another, namely, the first molar and the second bicuspid on the right occluding with the lower molar, and the two first molars, upper and lower on the left occluding. He removed all the teeth, and made a temporary set, upper and lower, with the result that the girl could quite close her lips and was able to masticate her food.

Mr. MUST showed several lantern slides of microscopical specimens.

Mr. LAURENCE showed an interesting case of caries in a lower molar.

The PRESIDENT called upon Mr. C. W. Glassington for his paper on "The Poisons used by Dentists and their Antidotes," which is published at page 1.

DISCUSSION.

The PRESIDENT thanked Mr. Glassington for his interesting paper, and said that he always kept the drugs that he ordinarily used in small bottles holding about a teaspoonful. He said that he always used glycerine for a spot that had been touched with carbolic acid; when using nitrate of silver he always picked up a little upon a piece of cotton wool dipped in mastic.

Mr. H. ROSE said that they were deeply indebted to Mr. Glassington for his interesting paper, and for his kindness in having the card printed for them. He said that he once heard of a case of a piece of nitrate of silver going down a patient's throat, and thought that fusing a little on a platinum wire was about the best method of applying it.

Mr. GREETHAM thanked Mr. Glassington for the cards which would be very useful. He said that he agreed with him that chloroform should never be given for tooth extraction, as he once was going to extract some teeth for a patient under chloroform, whom it took over an hour to bring round, and since then he would never extract under chloroform.

Mr. W. R. READ advocated the use of a strong solution of nitrate of silver.

Mr. FARMER felt, personally, that the College of Surgeons in omitting *Materia Medica* from their curriculum were leaving out a most necessary subject for the dental student, as he had to make continual use of a large number of drugs. He thought that Mr. Glassington's idea of fusing nitrate of silver on to a wire was by far the safest method of using the drug, but he used silver wire instead of platinum.

Mr. GLASSINGTON in replying said he used olive oil for applying to a spot which had been touched by carbolic acid, but he thought that any other oil would do as well, though glycerine would not be so good. As regards the platinum wire he ought to have said platinum or silver. He quite agreed with Mr. Farmer that *Materia Medica* ought not to be taken out of the dental curriculum.

The PRESIDENT proposed a vote of thanks to Mr. Glassington and those who had brought forward Casual Communications and the meeting terminated.

Dental News.

NATIONAL DENTAL HOSPITAL AND COLLEGE.

The Annual Dinner of the Past and Present Students was held in the Venetian Chamber of the Holborn Restaurant, on the 27th ult., Frederick Treves, Esq., F.R.C.S., in the Chair. Amongst those present were Messrs. C. J. Tomes, F.R.S., J. Smith Turner, S. J. Hutchinson, F. Canton, W. B. Paterson, W. H. Woodruff, Mayo Collier, Prof. H. R. Spencer, M.D., Prof. J. R. Bradford, F.R.S., etc.

After the Loyal Toast, the CHAIRMAN said;—

Gentlemen, I have much pleasure in proposing the toast of the evening, the Toast of "The National Dental Hospital and its College," and I may at once relieve your mind from any anxiety if I say that I have been instructed that the speeches this evening must be exceedingly short and that they have no dreadful matters introduced into them, and

to this I will strictly adhere. It is somewhat general on any occasion similar to the present, to have a speculation why in all civilized countries anything that is to be celebrated is celebrated by eating. No matter what the occasion may be, whether it is the opening of an Orphan Asylum, or the closure of a bogus Company, it is certain to be celebrated by a dinner. Now how it is possible for any number of well-disposed gentlemen to express sympathy with orphans by dining together, I fail to see, especially as it is more than probable that this will be carried out at the expense of the orphans themselves, and moreover how far the proceeds and position of a bogus Company can be promoted by a dinner it is very difficult to say, except possibly that the views that may be taken of that Company may be altered by the frame of mind of a person after dinner as compared with his frame of mind before dinner, and it is needless to say that even beyond the confines of civilization the custom exists of celebrating special occasions by dining. I believe in certain Pacific Islands, the arrival of a new Missionary is celebrated by a dinner, and one that serves a double purpose, for it also celebrates his departure. But, gentlemen, I cannot imagine that any dinner can be better individualized than this particular one of a company of dentists met together at their Annual Dinner in connection with a great dental hospital. What possible better ceremony could you suggest than that they should meet for the purpose of using their teeth in company. This toast, gentlemen, as you know, is coupled with the name of your Dean. Mr. Spokes, and Mr. Spokes has been upbraiding me because owing to unforeseen circumstances I was unable to pay a visit that I ought to have paid to the National Dental Hospital. But I should like you to know, gentlemen, that I am much better acquainted with the Dental Hospital than Mr. Spokes gives me credit for. I know a great deal of the work done by that Charity, and unless I am entirely misinformed, I have a very good opinion of the work done by that school. I know it is based upon the very best principles that can attend any kind of Professional or Technical School, and that its aim is not so much to be big as to be good. I take it that your work is work requiring infinite patience, and an exceedingly tedious process of tuition by person to person, and although you may not aim at being big, yet you do aim at being good, and I think I am not saying too much when I say that that aim has been very thoroughly attained, and the admirable teaching staff that exists at the College is I think a guarantee of the manner in which this is done, and Mr. Spokes can speak very much better than I can on these matters.

I cannot help alluding to one topic, and I think that Surgeons are entitled to allude to it, because I believe we are almost the best critics you can have upon this subject, and I allude to the quite remarkable progress that has been made by Dentists within the last few years. I think you will allow that surgeons are very well capable of judging of the progress of Dentistry, and it strikes us as little less than remarkable, and I do not think you will find amongst your admirers a more appreciative body than London Surgeons who can quite appreciate the difficulties you have, because we have a little meddling in the direction of your work. All know that work is very keenly appreciated, and I think we are almost in a position to be able honestly to criticise it, and one is delighted to see how perfectly Dentistry is a part of Chirurgy.

I think no one can help deploring the disappearance of the old-time dentist. The old-fashioned dentist was a great draw in comic papers, or papers considered to be comic, and I can hardly remember in years gone by the Christmas number of any comic periodical that did not reproduce some views of the Dentist of the past, I am sorry to say there was a certain sameness in this humour. It depicted in a series of pictures a

series of scenes in which the dentist was a primary or secondary hero. It always commenced with a picture of a man with a swollen face with his head tied up with a handkerchief with a knot at the vertex, and the handkerchief was always a spotted one, and that has been, and still is I suppose, the symbolism of toothache, and if ever an attempt is made to individualize toothache, as we do for instance Faith, Hope, Charity, &c., it will be in a statue, I suppose, of some figure of this character with a spotted handkerchief tied round its head with a knot at the vertex. Well, then follow a number of scenes that are more or less comic. They always end exactly in the same way: there is extracted from the patient's mouth a thing like a four-legged stool. Well, that was the good old-fashioned tooth-drawing dentist of the past, and I can really imagine that no kind of change has ever been more remarkable than the change which has taken place in the profession of dentists. It is really incredible how many maladies that come to us, especially to surgeons who are consulted for troubles of the alimentary passages, for which the prescription is a set of teeth. I am quite sure dentists have no idea to what extent their use extends. It would be quite out of place if I were to mention instances, but I will allude to one. A certain lady developed glandular swelling in the neck. The subject is of no interest except from the amount of money she spent over these glands and the number of remedies. The patient travelled about to different Spas and was advised to have this and that done, and her sole idea was to find out one more health resort where these could be made to vanish. At last she consulted a dentist, and in the course of time every one of the swellings in these glands had vanished.

I must be allowed to say also, that I have an impression that there is no such thing as cheap Dentistry. You have perhaps no notion of how often that question is brought before us. Patients will think nothing of spending twenty-five or thirty guineas upon an instrument, but to spend this sum for teeth is looked upon as perfectly horrible, and I have been in the habit of saying that there is no cheap Dentistry. I think that the Dentist gives more work than any other man in the profession, and how certain advertisements are built up I am unable to say, but I cannot help thinking that the art of Dentistry must be a little more moved in that direction if it is to take the place it is to take. The science, that is to such men as the gentleman on my right, must be considered as practically complete, but there is certainly a great deal to be done in the art of it and perhaps in the business of it. What people expect from teeth goodness only knows. They seem to expect the teeth to be absolutely indestructable, they must enable them to eat and more than that they must enable them to digest. If the dentist fails in any one of these particulars, the teeth are defective, and I quite imagine that people will tell you, that because we are told that there is a place far away where there is weeping and gnashing of teeth, they want teeth that will enable them to look well, and feel well, and digest well, and gnash well. I cannot help being reminded of a story that is more familiar to dentists than it is to us, of some good lady who was speaking to an aged woman in a village, this woman being absolutely toothless and very evil for her age, and this lady was pointing out to her that unless she mended her ways, she would probably end in a place where there was weeping and gnashing of teeth, and the old woman replied "let those gnash as have 'em."

I am afraid, gentlemen, that I have exceeded the limit of time but I give you most heartily the toast of the evening, "The National Dental Hospital and College" associated with the name of your Dean, Mr. Spokes.

In reply THE DEAN said:—

In responding on behalf of my colleagues, to the toast which you have just drunk, I must confine my remarks to one or two of the questions touched upon by the Chairman. The Chairman has told us about his patient, the child that howled on seeing whom it thought was a Dentist, but who left off crying when its mother said, "what are you crying for? This gentleman is not a Dentist." I am glad he said that it was in the commencement of his practice, as it is fair enough to put it into bygone times. I am glad to say however that we do not so often get howling children nowadays. They frequently take just as much or rather more interest in the Dentist than their parents and grown up friends do.

Mr. Treves has told you that I can say a good deal about the National Dental Hospital and College, but I do not propose to take up much of your time. I will simply say that with regard to the Hospital as a Charitable Institution, I think everything is going on as well as it can be expected to do. We have of course some difficulties which we cannot expect to be removed for some time. One of these is due to the fact that there is no doubt a certain part of the public who are willing to play the part of paupers to get Dental Treatment for nothing at all, but we have endeavoured always to discriminate between people who can afford to pay and people who cannot afford to do so. With regard to the School, you know something about it. We have plenty of elbow room and ventilation and warmth and light. Our building is calculated to provide for about 50 Students with plenty of comfort. We have had about 40 Students but have just got rid of some of them by sending them off to the College of Surgeons, and we still have room for some more, and when we reach 50, I think we shall have as many as we want to have to give every man plenty of elbow room, and so that the work can be carried out to advantage. There is one question with regard to Students, and that is the difficulty in getting through the amount of work. We want 50 Students in order to cope with the number of patients who apply, and when that time has arrived I think we shall have reached our millennium. Well gentlemen, with regard to the school, we have had a very good entry, and we have had a very good success at the Examination at the College, and I would just allude for one moment to the fact that our Dental Students are with us on precisely the same footing as Medical Students are at a General Hospital. They are drawn from the same class of Society, and have to pass the same Preliminary Examination, and, I think, gentlemen, we shall all admit that this is a very promising sign for the future of Dental Surgery. I do not mean that the National Dental Hospital has any reason to be other than proud of its past students, but I will say that I am perfectly satisfied with the status of the gentlemen who enter this school.

With regard to our staff we have had one or two changes. Mr. H. G. Read was obliged to resign, and his position was taken by Mr. Rushton, and Mr. Rushton's place was filled by Mr. H. J. Relph. Then we have had a loss which has not yet been filled, caused by the untimely death of Dr. Lapraik. To-day has seen the funeral of Sir Benjamin Ward Richardson, who in years gone by in connection with the College of Dentists took a great interest in our Institution.

Well, gentlemen, I feel especially after what our chairman has said about short speeches, that I must not occupy your time any longer. All I can say is on behalf of my colleagues, that if it should be necessary to spur them on to renewed energy, to lead them to give greater devotion to their work, the reception which you have given to this toast will, I feel sure, have that effect.

Mr. ALDERMAN RYMER, J.P. proposed "The Past and Present Students," He said :—

I can assure you that I propose that toast with the greatest possible pleasure. When I see before me a number of gentlemen, Past and Present Students, some of them practising their honourable calling with success, and others aspiring to that position, and when I see this meeting presided over by one of the most eminent Surgeons of the day and supported by so many distinguished Dental Surgeons and other men of Science, I cannot help thinking what a remarkable contrast there must be, there is, between the present and the past. Such a gathering 40 years ago would have been impossible, Forty years ago there was a most unsatisfactory state of things among the gentlemen who practised Dental Surgery. No doubt there were many good men, scientific men and honourable men among them, but there were also many others who were good, bad and indifferent, and moreover the indifferent predominated. About that time gentlemen, the first determined effort, was made to reform the position of the profession, the first *determined* effort, although no doubt there had been a shaking of the dry bones previous to that; but it was only then that the question was asked, "Can the dry bones live?" and the answer of a number of determined men to the question was, "If good, and we mean to make them so." Well, gentlemen, from that period organizations were formed. There were two organizations having the same object in view, but taking divergent paths towards the goal to be attained. Some have regretted that they did not work in the same way, but I think that if they had commenced upon one line, they might have diverged into two. As it was they came together ultimately, and with the best possible practical results. Well, gentlemen, I am not now going into the history of the reform movement, because many of you are well acquainted with it, but I am referring more particularly to-night to the School, because it was one of the organizations which were then formed, not the only one, for there were other equally valuable organizations formed, but it was one for giving instruction for Dental Students. It was in 1859 that the Metropolitan School of Dental Science was established in connection with the then College of Dentists which has been referred to by the Dean. The work was carefully carried out and at the inauguration of that Institution, which I remember very well, Dr. Brady presided. Dr. Brady was the only medical gentleman then in Parliament. Besides many prominent men in Dental Surgery, we had a lot of support from members of the Surgical Profession, chief among whom was the late Sir Benjamin Ward Richardson. His services were invaluable. Although Dr. Brady presided at the Inaugural meeting of the Metropolitan School of Dental Science, Dr. Richardson was the first who organised the course of lectures undertaken by Mr. Hulm, Mr. Perkins, Dr. Bernays, Mr. Spencer Wells, and other members of the Medical Profession who assisted us very materially, but as stated just now, to Dr. Richardson we were really mainly indebted. That was indeed, Mr. Chairman, a great, a noble, and a generous heart that ceased to beat last Saturday, when Sir Benjamin Ward Richardson died. All who knew him must have had the most intense affection for him. I knew him for forty years. He had an intense interest in the cause of Education, he had an intense interest in science, he had a wonderful aptitude for clear knowledge, and he was a great student and a hard worker, and nothing gave him greater pleasure than to impart that knowledge to others not only in the way of instruction, but having given instruction he proceeded to education, to tell people how they might bring that instruction to the best effect in after life, and to practical education. In the cause of our Speciality he took very great interest, and I am sure we must one and all of us deeply regret his loss and sympathise with his wife and family, which we all do.

Well, gentlemen, this school went on for a time, and later on it was reorganised to meet the requirements of the times, when Mr. Coles was Dean, and from that time the new departure was made which has been so successful. From that time a number of students have been turned out who have been an honour to the College, and there are students now who will be in like manner an honour to the College in future. Gentlemen, I will not detain you further, but I will ask you to drink most heartily if you please to the toast of the Past and Present Students, coupled with the names of Mr. Frederick Rose for the past students, and for the present students, Mr. Brown Thomas, who is I believe as popular with them as Mr. Frederick Rose was with the past.

These gentlemen having briefly and suitably responded, Mr. E. W. ROUGHTON proposed "The Visitors."

In the course of his speech he said:—Amongst our guests around the board I see so many distinguished people that it is impossible to refer to them all by name. I see Mr. Alderman Rymer who is well known to everyone in connection with this Hospital, and especially well known to the Students by a certain medal that bears his name (applause), and then we are honoured by the presence of Mr. Canton, the President of the British Dental Association (applause). Then there is Mr. Smith Turner (applause), who has done his utmost for the Dental Profession, and then there is Mr. Hutchinson, who is known to everyone and especially to those who became past Students during the last two or three years, when he occupied the position of Examiner of the College of Surgeons. Then I see over there my friend Mr. Paterson (applause), a distinguished member of our friends in Leicester Square. I think we rather envy the people in Leicester Square for this reason if for no other. We are called the National Dental Hospital. I think it is very possible that in a few years time, owing to the association of other buildings that they will be called the *Imperial Dental Hospital*. (Laughter). Well, then there are other guests round the table, many distinguished men who I should like to refer to individually, but I find it rather impossible in the short space of time that this toast ought to take to do so. Last on my list, but by no means least comes the name of Mr. Tomes (applause). The work that he has done for the profession both in past years and recently is so well known to you that it would be quite out of place on my part, as I am not a Dental Surgeon to attempt to refer to it. The name Tomes always reminds me of a rickety child. Perhaps you don't see why, but I will explain. Some years ago I was taking a class of Students for a case of Rickets, and we discussed the various points, and at last we began talking about teeth. Well I knew that in Rickets dentition was very often defective, so I asked one of the Students to look at the child to see whether it had a proper number of teeth for its age. Well, then it suddenly occurred to me that I did not know myself, but luckily the child got me out of the fix by absolutely refusing to have its mouth looked at. When I got home I took up a book on Dental Surgery, but I had not read many pages when I found the name of Tomes, and on nearly every page I came across Tomes, and at last I really thought there was nobody else who knew anything about the matter. On Tumours of the Teeth the very first thing I saw in very large type was Odontomes, and I thought here was at least one chapter for someone else. Well, I soon found out my mistake, because I found out that tumours of the teeth were called *Odontomes*. (Laughter). Well, ever since that time I have had a permanent conviction in my mind that the name of Tomes and Dental Surgery are absolutely inseparable. I have much pleasure in proposing the toast of the Visitors coupled with the name of Mr. Charles Tomes.

Mr. C. S. TOMES, F.R.S., in response, said:—

Mr. Chairman and Gentlemen, a little time after you had invited me hospitably to meet you here I got a letter from Mr. Spokes, your Dean, and enclosed in it a post card addressed to him. The letter asked me if I would undertake the response for the Visitors, and the back of the card was not left blank but had written in a large hand upon it "Yes." I thought, gentlemen, as I looked at this post card that it showed some knowledge of men and affairs. Some knowledge of men because some of my detractors say that I am not given to promptly answering letters, and knowledge of affairs in as much as I flattered myself Mr. Spokes wished me to say yes, and he placed me in a position that I hardly could do otherwise, and that knowledge I think must be eminently useful to the Dean of a Medical School. I take it that I am asked to respond to this toast largely because I am here as the representative of a rival school. No one knows what may be before us in the future in the way of a University in London, but at present there are distinct Medical Schools, and there are distinct Dental Schools. There is a rivalry between them, but it is a rivalry that is friendly to the uttermost degree. (Applause.) My late colleagues at the Dental Hospital have asked me to go back, I might almost say in my old age, to the position of a teacher, and to begin again there as a lecturer on a subject which I lectured on twenty-five years ago or thereabouts. I do not know that they were wise in so doing, but at any rate my colleagues will be satisfied that I should answer for them this evening. We have here representatives of other schools, and I am glad to see that the rising and thriving school of Liverpool is represented here. We have members of the Staffs of various of our London Hospitals, and for them I will venture to thank you very earnestly for the hospitality you have extended to them, and I will borrow an expression of Cobden's, quoted by Lord Roseberry the other day, when he said, "I do not deal in perorations, and so will sit down."

Mr. CUNNINGHAM, in proposing the toast of "The Chairman," said he had sent to hunt and search up "Treves" in the University Library, at Cambridge, and appealed to gentlemen to listen to the information gathered by a fond mother to assist her son. She said "I have searched history, and I have discovered that there is a Holy Coat of Treves, and this coat is a seamless garment,"—"but," continued the speaker, "I am sure that the coat which we have seen in the Chair to-night is not seamless, but in our opinion most seemly, (Applause) and if your approval extends so much to the coat, what will you say, gentlemen, when I ask you to pay tribute to the man?" Mr. Cunningham also referred to the work done by the Chairman in connection with the North Sea Mission, and quoted a poem expressing his feelings on this subject.

The CHAIRMAN, in reply, said:—

Mr. Cunningham and Gentlemen,—It is exceedingly difficult for me to respond to this exceedingly kind toast that my friend Cunningham has proposed, and also to adequately express my deep appreciation of the way in which you have been good enough to receive it. Mr. Cunningham has alluded to my coat, and my business instincts compel me to say that I am quite prepared to part with it for a consideration, and I shall regard him as having a prior claim: and after this is over I shall be very pleased to negotiate with him. I feel, gentlemen, a little sorry because Mr. Brown Thomas has evidently pictured what is an ideal dinner. I have had some experience of Students' dinners. I once went to an hotel shortly after a Students' dinner had taken place, and I asked the proprietor whether it was a success, and he said he judged from the number of dessert plates that were broken that it was a success. Mr.

Brown Thomas mentioned that there should be a dinner, and that we should be disposed to finish up the evening afterwards, and I am sorry, gentlemen, that this dinner should finish up with a speech from the Chairman. I rather gather that his view of finishing up the evening is a little different from listening to a speech from the Chairman.

Mr. Cunningham has been good enough to allude to my long association with the North Sea Mission, and I may mention a small dental experience connected with that. One of the medical officers wrote to me and said that he would be pleased if we would send him a dental "key." I wrote back and told him that I did not think we had one, and that it was a remote instrument. He said that it did not matter as he had been able to do what he wanted with a bradawl that he had borrowed from the ship's carpenter!

I am also glad to know from a suggestion dropped by Mr. Roughton that if a dentist puts your teeth in order, he is to ask you to dinner afterwards in order that you may test his work. That being the case I shall I think present myself to the National Dental Hospital as an out-patient and shall expect that they will treat me in a like manner. I should have liked to have added one remark that I should have made a little time ago, and that is this. We are very much concerned at the present moment whether members of the College of Surgeons should be admitted to the Council. It is no secret, and I may at once say that I personally am in favour of admitting them, and I am still more in favour of admission on the Council of some representative of dentists. It is a most anomalous thing that we, dealing with Dental Surgery, have not a single dentist on the Council, and I think that Dentists have a prior claim, and I can only say that no person can be more cordially disposed to any movement in that direction than I am myself. In conclusion, gentlemen, I can only apologise for my lack of power in inadequately expressing to you my very great appreciation of your extraordinary kindness.

During the evening a programme of Vocal and Instrumental Music was performed by members of the Staff, the Students, and their friends. Messrs. A. Smith, Rushton, Wheatley, and Brown Thomas, sang, Mr. Roughton brought his violin, and Mr. Genet gave one of his well-rendered recitations from the Ingoldsby Legends. Mr. Harvey Lohr presided at the Pianoforte.

DENTAL HOSPITAL OF LONDON.

The Annual Dinner of the past and present Students and their friends took place on Saturday, Dec. 5th, at the Hotel Metropole, under the presidency of Mr. R. H. Woodhouse. A large number of past and present Students were in evidence, and the muster of guests was considerable. In addition to the usual loyal toasts, the list included that of the "Past and Present Students," proposed by the Chairman and replied to by Mr. Mummary—in an excellent speech—for the past Students; and by Mr. R. L. Young on behalf of the present Students. Mr. Henry Morris in a speech full of quiet humour, proposed the Hospital and School which he said would soon be able he hoped to increase its size and corres-

ponding usefulness. Mr. Storer Bennett replied for the School, and touched upon the various changes which had taken place during the year, especially on the resignation of Mr. Hepburn and Mr. Underwood, although the names of their successors, Mr. Lloyd Williams and Mr. Tomes were sufficient guarantee for the future of the Lectureships of Mechanics and Dental Anatomy. Mr. Smith-Turner, in the regretted absence of Dr. Walker, touched upon the position of the charity at present, and glanced into its future. He hoped that the required amount of capital would be liberally subscribed by the friends of the Hospital. The next toast was that of "The Visitors," ably responded to by Mr. A. J. Woodhouse, while the list was concluded by the health of the Chairman,—proposed by Mr. S. J. Hutchinson,—being drunk with musical honours. The music was under the direction of Mr. Herbert Schartau, and we can only say that it was upon a par with the dinner and the speeches, namely excellent.

DENTAL HOSPITAL OF LONDON.

The following has been forwarded to us by the Dean of the Dental Hospital of London:—

The members of our profession who so liberally subscribed towards the fund raised to build a new hospital, will be interested to know that the plans for the building have been accepted, that Messrs. Keith-Young and Hall are to be the architects, and that as soon as the site can be cleared the building will be commenced. The plans can be seen in the Council Room of the Odontological Society by anybody who would wish to see them. The site of the new hospital is to be on a large area on the south side of the square, next to the present hospital, and is bounded on the north by Leicester Square, on the south by Long's Court, on the east by Green Street, and on the west by St. Martin's Street. It is intended that the new hospital shall be ready for occupation in eighteen months.

When the Committee purchased this site, they did so relying upon the rents the houses would produce during a few years, to enable them to accumulate money for building. Recently the houses have been condemned as unsafe and unsanitary, and are now being demolished, consequently the

authorities are compelled to begin building ; this must necessarily involve the charity in considerable indebtedness, towards defraying which help is most seriously asked.

The new hospital will be a structural alteration that will greatly improve the appearance and sanitation of that part of London. It is possible therefore to appeal for funds for three reasons : (1) The usefulness of the charity ; (2) The Committee has to build before it is prepared to do so, because of the action of the London County Council in condemning the old houses ; (3) The building of the hospital will in every respect improve a part of London that much needed it, and has enabled the parish to improve the Green Street corner, that was one of the most dangerous ones in London.

The Committee of Management will be most grateful for any pecuniary help ; perhaps some members of our profession may be able to influence others to bestow their charity upon our deserving institution.

MORTON SMALE, *Dean.*

The Dental Hospital, Leicester Square.

DENTAL HOSPITAL OF LONDON.

Application is intended to be made to Parliament in the ensuing Session for an Act to empower the Dental Hospital of London, or the trustees of the managing committee of that hospital for erecting a new hospital, to purchase by compulsion or agreement certain land and property known as 34 Leicester Square, except so much thereof as may be acquired by the vestry of St.-Martin-in-the-Fields for street improvements.

Times.

DENTAL HOSPITAL OF LONDON, LEICESTER SQUARE, W.C.

This charity is in urgent need of help. The Committee bought some houses for their new site, relying upon the rents the houses produced for a few years, to accumulate money for building. Recently the houses have been condemned, and are being demolished, consequently the authorities are

compelled to begin building the new Hospital. Such a proceeding must necessarily involve the charity in considerable indebtedness, towards defraying which, help is most seriously asked.

The new Hospital will be a structural alteration that will greatly improve the appearance and sanitation of that part of London.

Subscriptions and Donations will be gratefully acknowledged by the Secretary, Mr. J. Francis Pink, at the Hospital.

BRIGHTON COUNTY COURT.

His Honour Judge Martineau held a sitting at the Brighton County Court at the Court house, Church Street, Brighton, when the following case came on ;—

AN EXPERT ON ARTIFICIAL TEETH.—LEWIS V. STYER.—Judgment was given in a case in which Annie Lewis, of 11, St. Mary's place, sued Mr. L. R. Styer, of 25, Old-stein, dentist, for £4, the question being whether a set of teeth supplied by the defendant were properly made. The case was partly heard last week, when plaintiff complained that she was unable to masticate with the teeth, and that they also interfered with her articulation.—At his Honour's suggestion, a dentist (Mr. Beckley), knowing neither of the parties, was called as an expert witness, and after examining the teeth, deposed that in his opinion they were properly made and fitted plaintiff. He stated that difficulties in articulation and mastication always occurred with new sets of teeth until the user got accustomed to them.

Judgment was given for the defendant with costs.

Mr. J. C. Buckwell appeared for the plaintiff in this case, and Mr. A. Mirams for the defendant.

Sussex Daily News.

DEATH UNDER CHLOROFORM.—THE INQUEST.

At the Nottingham General Hospital Mr. F. W. Rothera, the deputy borough coroner, held an inquest upon the body of Fanny Hallam, a laundrymaid at the Borough Asylum, who was admitted to the Hospital recently, and died

under the influence of chloroform, it having been administered for the purposes of the extraction of teeth.

John Hallam, a blacksmith, and father of the deceased, gave evidence of identification of deceased.

Hubert Redmayne Sedgwick, assistant house surgeon at the Nottingham General Hospital, said deceased was admitted to the Hospital about two weeks ago suffering from disease of the kidneys. On the 15th inst. he was administering anæsthetics to nine patients who were about to have teeth removed, deceased being amongst the number. She was examined upon her entrance into the room, but witness found nothing wrong with the outer lungs, and as far as he could tell he found no indication against her having chloroform. When it had been administered deceased remained apparently all right during the extraction of two teeth, when the bleeding suddenly discontinued. He immediately stopped the operation, and applied artificial respiration and other means, but no sign of life presented itself. The chloroform was of the precise strength, and given in the same manner as to the other patients. Witness could not attribute any cause why deceased should meet with her death: heart failure sometimes occurred. A post-mortem examination had been conducted, at which witness was in attendance, but that disclosed no reason. The heart and lungs were all normal, but the kidneys were naturally diseased, as would follow from the fact that she was suffering from that complaint.

By a Juryman: There was a system of measurement in vogue whereby the quantities of chloroform were properly marked.

Dr. J. C. Buckley, senior Medical officer at the Nottingham General Hospital, gave evidence with reference to a post mortem examination which he conducted, and which revealed the fact that all the organs were healthy, with the exception of the kidneys, which were the seat of inflammation. Their condition, however, would not have any effect in a case of this description; it would not render the administration of chloroform undesirable. Deceased had been under witness's care for some time, and it was her own suggestion that the teeth should be drawn. About three weeks ago deceased had two teeth extracted without chloroform. On this particular occasion, however, he was questioned as to whether she would have these teeth, eight or nine in number, extracted without chloroform, and she replied in the negative.

By a Juryman: The same quantities were not given to weakly as in the case of strong persons. It was administered until the patient apparently lost consciousness.

The Coroner summed up briefly, and observed that this seemed to have been one of those cases, the result of which no one could have foreseen. Every precaution seemed to have been taken to see that deceased was a fit and proper subject for chloroform. There were instances, sometimes, where patients did not recover, but on this particular occasion there did not appear to have been any carelessness. He supposed the jury would have no hesitation in saying that deceased died under the administration of chloroform given for the purpose of having teeth extracted.

The Jury agreed with this suggestion, and a verdict to that effect was accordingly returned.

TEETH DRAWING AND BLOOD POISONING.

INQUIRY AT HARDEN.

At the Golden Fleece, Harden, Mr. W. Barstow, Coroner, and a jury, were engaged for nearly six hours, investigating the cause of death of Miss Mary Ellen Steele, 22, daughter of Mr. Jos. Steel, of Field Head House, Harden, spring maker. The jury had seen the body a week ago, prior to its interment. Evidence was given by the father of the deceased to the effect that on November 4th his daughter went to Keighley, and there had two teeth and seven stumps extracted while under the influence of nitrous oxide gas. She seemed well and cheerful after the operation, but next day complained of pain, and then a small cut was observed on the inside of the lower lip and one on the lower gum. She got worse and on November 13th, Dr. Angus, of Bingley was called in. On the 19th he found a slough on the inside of the lower lip; and on the 26th clear evidence of blood poisoning was visible, and she died on December 2nd.

The witness was cross-examined by Mr. Percy Naylor, who appeared for the relatives, and by Mr. H. W. Sunderland, dentist, who had extracted deceased's teeth.

Dr. Angus could not say that it was likely infection could have been conveyed to the cuts or abrasions referred to, and the previous immersion of the forceps in a solution of per-

chloride of mercury he should regard as an efficient precaution. He had never heard of a similar case after teeth extraction, and a run-down condition of body might have predisposed the deceased to septicæmia.

Mr. Wright Sunderland was called, and explained that he was a registered and qualified dental surgeon of twelve or thirteen years' experience, and that the operation in question was performed with due care and skill, and elicited an expression of satisfaction from his client. He considered it impossible for the cuts or scratches spoken of to have been caused by the forceps while extracting the upper anterior teeth, as in this case every precaution was taken at the time to secure an antiseptic condition of the instruments.

After retirement, the jury found unanimously that the deceased had died from blood poisoning, the cause of which the evidence did not show; and Mr. Sunderland was exonerated from all blame.

APPOINTMENTS.

Mr. T. Jackson, Jr., L.D.S., has been appointed Dental Surgeon, with salary, to the Burnley Union Workhouse Infirmary.

Mr. Rupert H. Cumine, L.D.S., has been appointed Dental Surgeon to the St. George's-in-the-East Schools at Upton Park, E.

GERMAN DENTISTS IN SOUTH AFRICA.

In the *Cape Times* a correspondent protests against the practice of the Cape Government to grant licenses without examination to dentists holding German dental certificates so long as Germany does not admit British or British-colonial dental certificates on the same terms. The practice, it appears dates from a few years back, when the Cape Government issued a special order for a dentist's license to be issued for South Africa to a German dentist who had previously applied for one to the General Medical Council of the United Kingdom, but had been refused on the ground that the Council did not deem it advisable to recognise German dental certificates, since British ones were not accepted in Germany.

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

A CASE OF EXTRACTION AND SUCCESSFUL REPLACEMENT OF AN UPPER BICUSPID TOOTH

To the Editor of the "British Journal of Dental Science."

Dear Sir,—Among the various operations of Dental Surgery comparatively few instances of this kind have been recorded, that it seems to me of sufficient importance to warrant me in venturing to give it publicity in the pages of your Journal.

The facts of this interesting and rare case need occupy but little space and are as follows :—

A male patient, aged 26, came to consult me in reference to his suffering, as he supposed, from toothache, and desired me to extract a left upper bicuspid tooth, thinking the pain proceeded from that tooth. Having carefully inspected the tooth, I pronounced it to be sound, still, however, he insisted on having it drawn; acceding to his request, I extracted the imaginary painful tooth, which, on examination, [proved to be quite healthy. After the lapse of four hours, the patient returned bringing the tooth with him, and asked if I could replace it; I restored it to its natural position by gentle pressure, subsequently I applied an anodyne lotion of an antiseptic nature, in order to consolidate the soft parts surrounding the alveolus. This occurred at 8 p.m., on the 13th of December, 1895, and recently having had occasion to examine the tooth I found it had become firmly fixed, and as useful as ever, and moreover, it retains its normal healthy-looking hue.

Yours faithfully,

EDWARD L. HENRY.

To the Editor of the "British Journal of Dental Science."

Dear Sir,—I shall esteem it a favour if you or any of your numerous readers of the "British Journal of Dental Science" can inform me to whom I should apply in claiming to be registered as a Dentist under the new Dentists' Act of New South Wales. I beg to enclose my card, and sign myself

DENTURE.

December 3, 1896.

ANSWER TO CORRESPONDENT.

J. C. LINGFORD.—Letter received. Sorry space will not permit us inserting it until next issue.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester,
during the month of NOVEMBER, 1896.

Number of Patients attended	1090
Number of Extractions	480
Number of Extractions under Anæsthetics	152
Gold Stoppings	94
Other Stoppings	225
Miscellaneous { advice, temporary fillings, sealings, dressings, &c.	371
Gold and Porcelain Crowns	16
Inlays	
Total	1338

J. STEPHENSON, *House Dental Surgeon.*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

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British Journal of Dental Science.

No. 696.

LONDON, JAN. 15, 1897.

VOL. XL.

OPEN BITE.*

By J. F. COLYER, L.R.C.P. Lond., M.R.C.S., L.D.S.Eng.

Mr. President and Gentlemen,—Amongst the many forms of irregularities of the teeth which we are from time to time called upon to treat, there are few, if any, which present more troublesome difficulties than that condition where the anterior, and sometimes also the greater number of the posterior, teeth fail to occlude in a proper manner. This condition is generally known as “open bite,” a term for which I believe we are indebted to Mr. Baldwin.

From a practical point of view “open bite” may be considered under two headings:—

(1) Cases where the bicusps and the molars occlude, but the cutting edges of the upper and lower anterior teeth are separated from one another by a space more or less oval in shape.

(2) Cases where not only the anterior teeth, but the majority of the posterior teeth, fail to occlude.

Etiology.—The causes producing “open bite” are, in the majority of cases, by no means definitely understood, and with your permission I propose to refer, in as brief a manner as possible, to some of the views which have been advanced.

In cases coming under my first heading the deformity is

* Read before the Odontological Society of Great Britain.

invariably the result of some acquired habit, such as thumb or finger sucking, the child bending the thumb or finger, as the case may be, and inserting it, in a horizontal manner, between the cutting edges of the upper and lower teeth. The pressure thus exerted forces the superior teeth, and at the same time the alveolar process, in a direction upwards and slightly outwards. In the lower the teeth are forced downwards, but the displacement is nothing like so well marked as in the upper. A by no means uncommon cause of this form of "open bite" is to be found in the various artificial teats and similar articles which are given to troublesome children to pacify them.

In cases coming under my second heading, the etiology is frequently obscure. In a few instances the use of regulation plates can be traced as the cause of the mischief, the back teeth being left uncovered, and so permitted to elongate.

In many cases—more especially the severe ones—the chief cause of trouble lies in some defective development of the ascending ramus. In a few instances the defect is an increased obliquity of the ramus, a point shown in a figure in Tomes's "Dental Surgery." This drawing also serves [to illustrate another point in the anatomy of some examples of "open bite," namely, the increase in the development of the anterior portion of the mandible. In many cases I am inclined to think that the defective development of the ascending ramus is an actual arrest in growth, namely, a "shortening"; such a condition will of itself produce an oblique angle.

A point, too, which I have noticed in some cases, is the somewhat sharp bend downwards the horizontal ramus of the mandible makes about the position where the most anterior fibres of the masseter muscle are inserted. A few cases of "open bite" can be traced to an arrest in development of the anterior portion of the maxilla, and this condition is also

frequently combined with the defective development of the ascending ramus already alluded to. The presence of "honey-combed" teeth is frequently to be noted in cases of "open bite," and is, I think, invariably accompanied by an arrest in development of the superior alveolar process. In the majority of cases the palate is unusually high and the patients are mouth-breathers. This circumstance naturally leads one to speculate whether mouth-breathing can in any way be a cause of the condition we have under consideration. In reference to this point Mr. Tomes' says :^{*} "In most instances, the patients have been unable without effort to breathe through the nose, and the mouth has consequently been habitually kept open even during sleep. Possibly the constant traction exercised upon the anterior part of the jaw in keeping the mouth open, may have had some influence in determining the peculiarity of form, and the freedom from the pressure exercised mutually by the antagonistic molar teeth, upon each other, may have led to their rising higher with their sockets than they do when their conformation is normal."

Against this we must remember that in cases where mouth breathing is most marked, only the second molars, or rather the most posterior teeth meet, a fair space existing between the first molars. If Mr. Tomes's view be correct, there is no reason why the first molars and the bicuspid should not rise, as well as the second molars, but such is not the rule.

In a paper on "Open Bite," contributed to the *Dental Record*,† Mr. Baldwin recounts the views of Herr Schmidt as follows :—"In most cases of open bite which he has observed, the patient has been of a strumous constitution, and this has caused an enlargement of tonsils, and a generally increased thickening of mucous membrane of both nose and fauces.

^{*} "A System of Dental Surgery," 3rd edition, p. 173.

† Vol. ix., p. 147.

Thus the difficulty of breathing through the nose is explained, and also there is presented a reason for an additional difficulty of breathing through the mouth. The result of this is, that the mouth has been held open, the tongue has been held down to the floor of the mouth, and the tongue's tip has been pressed against the back of the front part of the lower jaw and teeth, in a downward and forward direction. This operating on the yielding bone of a strumous person, has caused the alteration of the angle at which the body of the lower jaw is set to the ascending ramus, so that the deformity of open bite is produced." He also suggests that the impact of the column of inspired air upon the roof of the mouth, is a cause of the abnormal vaulting of the palate in these cases.

This explanation does not account for the bending of the mandible to which I have already referred. A thought which occurs to me in relation to these cases is this. The principal force of the muscles at the posterior part of the mandible is upwards, at the anterior part downwards. The masseter runs as far forwards as the point where the facial artery crosses the bone, and it is near this spot one notices the marked bending to which I have referred. May not this bending be produced by muscular effort? The mouth is kept open of necessity, and is therefore constantly being acted upon by the depressors of the jaw, while the muscles at the back of the jaw, namely the temporal, masseter and internal pterygoid are constantly tending to raise the mandible. The idea, I own, is purely speculative. The traction of muscles on soft bones, is of course no new phenomenon, and one has only to instance "rickets," a condition in which the bones become bent in various directions, the result of muscular force.

That the vaulted palate is in some measure due to the pressure of the inspired air is quite possible, and a recent issue of the *West London Medical Journal* contains an excellent paper bearing on this point by Mr. Mayo Collier.

In it the author points out that if one nostril be blocked up, the rush of air passing under the naso-pharynx, and to some extent through the open half of the nasal cavity, lessens the tension in the closed portion of that cavity. This can be shown, according to him, by the following simple experiment: Take a bent piece of glass with mercury in the bend, and connect one arm with a fairly thick elastic tube, and insert this latter into the blocked nostril, and it will be noticed that during every inspiration the mercury will fall in one limb and rise on the other, to the extent of an inch or more, and this, according to the author, is equal to a pressure of about half a pound on every square inch. In other words, if we look upon each nasal cavity as a box, it means that in cases of nasal obstruction, during each inspiration there is a force equal to half a pound on every square inch of the bones forming the fossa, and it is possible to conceive that such a force would produce the contracted and high arched palate often seen in these cases. This view is corroborated by an experiment made by Ziem and quoted by Mr. Mayo Collier. Ziem artificially blocked for a long time the nostril of a young animal, with the result that he noticed "there was a deviation of the intermaxillary bone and the sagittal suture towards the shut up side, also lesser length of the nasal bone, frontal bone, and the horizontal plate of the palate bone, less steep elevation of the alveolar process, smaller distances between the anterior surface of the bony auditory capsule and the alveolar processes, and also between the zygomatic arch and the supra-orbital borders—in other words, the whole side of the face was squeezed in from all points by the unequilibrated atmospheric pressure due to the rarefaction of the air from within the obstructed nasal fossa, with a result that the whole side of the head was prevented from expanding and growing." I have referred to these experiments because they seem to open

up new thoughts, and shed fresh light upon some of the forms of contracted arch we at times meet with.

Treatment.—For the *treatment* of “open bite” it is impossible to lay down any hard and fast rules, as each case must be treated on its own merits.

To deal first with *class I.*, namely, cases where the posterior teeth occlude in a proper manner, the deformity being limited to the anterior teeth. In cases seen at an early age, before the eruption of the permanent teeth, much may be done by breaking the child of any vicious habit it may have acquired, and with the eruption of the permanent teeth the condition will be to some extent improved. It is well during this period to advise the use of a skull and chin cap. In cases where the habit of thumb sucking, &c., has been continued during the eruption of the second dentition, or where the deformity is severe, treatment is of little avail. Under such conditions we should remember that, although the appearance of the patient is a little unsightly, the bicuspid and molars articulate, and the teeth can, therefore, perform their function of mastication perfectly well, so that the best advice is invariably to leave well alone. Where the personal appearance is of great importance; for example, in young girls, the crowning of the six upper anterior teeth might be called for. In a very severe case this would hardly be practicable, and under such conditions the best line of treatment to pursue would be to remove the anterior teeth, and insert a continuous gum denture.

The treatment of cases coming under *class II.* may be considered under the following headings. (1) Removal of adenoid and enlarged tonsils; (2) the use of the skull and chin cap; (3) the removal of teeth; (4) cutting in the bite; (5) a combination of the above.

(1) *Removal of Adenoids and enlarged Tonsils.*—It is well in most instances to preface treatment by having any

adenoids, enlarged tonsils, or any other cause of nasal obstruction which may be present removed, for the following reasons:—(a) Nasal obstruction may be, directly or indirectly, one of the causes producing open bite; (b) the removal of adenoids and enlarged tonsils is always productive of beneficial results to the patient as far as general health and nutrition are concerned.

(2) *The use of the Skull and Chin Cap.*—The skull and chin cap is strongly recommended by some and in a few cases may perhaps be quite sufficient to bring the teeth into proper occlusion—a result probably attained by forcing the posterior teeth into their sockets. Cases treated by this method are recorded by F. Heuckworth* and Tomes.† If this method is to succeed the apparatus must be constantly worn, and, in addition, must be properly adapted, care being taken that the elastic bands stretching between the chin and skull caps exert pressure in an upward and not a backward direction. To my mind the most suitable cases for this form of treatment are those where the cause is due to some mal-arrangement of the teeth, and not to defective development of the ascending ramus or angle. As an adjunct to other forms of treatment the skull and chin cap is very useful, but I am inclined to regard it as a somewhat weak reed to rely upon, except in a very few cases.

(3) *The Removal of Teeth.*—The extraction of the second molars may be quite sufficient to remedy some examples of open bite, and the case shown was easily cured in this way. In fact, the majority of cases would be greatly benefited by pursuing such treatment, but unfortunately the condition usually met with is sound second molars and unsavable first molars; under such conditions extraction of the second molars is hardly justifiable if other methods can be

* C. Ash & Son's Quarterly Circular.

† "A System of Dental Surgery," 3rd edition, p. 173.

resorted to. A good example of this is shown. Under these conditions the treatment most likely to lead to beneficial results is to remove the remains of the first molars, and employ the skull and chin cap, and to follow this up by the operation of "cutting in the bite." In examples of open bite which come under notice before the second molars have erupted, the most satisfactory plan seems to lie in the removal of the first permanent molars as soon as possible, and the use of a skull and chin cap during the eruption of the second molars. When the deformity is very severe it may be necessary to resort to the extraction of a large number of teeth, as in the case recorded by Mr. H. Rose in the *Journal of the British Dental Association* for November, 1896, where the whole of the teeth were removed and dentures substituted with beneficial results.

(4) *Cutting in the Bite.*—This method is extremely satisfactory, and may be used alone, in combination with extraction, or the skull and chin cap. The treatment consists in grinding down the teeth until the bicuspid and the molar articulate. The idea is by no means new, but is one which might be more extensively adopted in these troublesome cases. It possesses the advantage of (i.) giving the patient a good surface for mastication; (ii.) being permanent; with teeth forced down by the skull and chin cap, there is a tendency for them to rise again directly the apparatus is thrown aside; (iii.) the patient is not put through a long and tedious line of treatment.

The operation should extend over several sittings, and for preference a fairly long period of time. In one case—the models of which I shall have the pleasure of showing you—the treatment was spread over the period of one year. The advantage of having a good space of time between each sitting is, that any irritability of the pulp caused by the operation can subside, and time is allowed for the probable

formation of secondary dentine ; in this way more tooth structure can be removed than would be the case if a shorter period of time were allowed. The cut surfaces of the teeth should be polished after each sitting, and the patient directed to apply some spirits of wine to them twice a day, and the necessity impressed upon them of first drying the surfaces of the teeth, and keeping them free from saliva for about a minute after the spirit has been applied. By this plan the cut surface of the dentine is to a certain extent hardened, and any sensitiveness that may exist is allayed. In my last two cases I have used nitrate of silver instead of spirits of wine ; it is more effective, but has the disadvantage of discolouring the teeth.

(5) *Combination of Methods.*—In very many cases where a single line of treatment is insufficient to produce a good result, a combination of methods may be successful. This is well shown in the case illustrated. Here improvement to any great extent can hardly be expected by adopting any one single method, while a combination would be efficient. In such cases the usual method I pursue is :—

(1) To extract the first permanent molars.

(2) To use a skull and chin cap for a period of perhaps six to twelve months, namely, during the period the second permanent molars are moving forward in the gap caused by the removal of the first permanent molars, at the same time expanding the arch if needful.

(3) To “cut in the bite” if the skull and chin cap is not sufficient to bring the jaws together.

TO PREVENT NAUSEA IN TAKING IMPRESSIONS.—A few drops of spirits of camphor on the tongue will relieve almost instantly, so that an impression can be taken without trouble for the most sensitive patient.

S. G. C. Watkins.

ORAL SURGERY.

By EDMUND W. ROUGHTON, B.S., M.D. (Lond.), F.R.C.S.
Eng.

(Continued from page 918.)

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DISEASES OF THE LIPS.

HYPERTROPHY.

Hypertrophy affects the upper lip more often than the lower. It is usually due to the irritation of cracks or fissures about the mouth, and chronic nasal catarrh in strumous children. In such cases it is often known as *strumous lip*; but it may occur in congenital syphilis. The hypertrophy usually disappears as the general health improves under appropriate constitutional treatment. Sometimes it is necessary to remove a portion of the hypertrophied tissues.

INFLAMMATORY AFFECTIONS.

The different inflammatory affections described under "stomatitis" affect the mucous aspects of the lips in common with the rest of the buccal mucous membrane, and not unfrequently overflow to their cutaneous surfaces. Thus superficial ulcers similar to those occurring on the tongue and cheeks are often met with in secondary syphilis, or as the result of dyspepsia. Cracks and fissures at the red margin of the lips may be due to the same causes, or may result from exposure to cold winds, etc. If neglected they may become deep and painful, and prone to bleed when the lip is stretched in laughing, yawning, etc. They are often difficult to cure; in the first instance they should be treated with a simple ointment; if they prove obstinate they should be touched with nitrate of silver. - The patient should be advised to avoid opening out the fissure by stretching his lips.

Primary syphilitic sores are not uncommon on the lips.

They are caused by inoculation of some crack or excoriation on the lip with the discharge from mucous tubercles in the mouth of an infected person, or by using a drinking vessel immediately after a person with secondary syphilitic disease of the mouth. Either lip may be affected, but the upper is more commonly the site of a chancre than the lower. It is most often seen in young persons, especially females. The sore is usually raised, roughly circular, excoriated upon its surface, and discharging sanious pus, or sometimes having a tendency to scab over. The base of the sore is usually more or less indurated, but the induration is not so marked as in chancres on the genital organs. The lymphatic glands under the jaw very soon become enlarged and indurated, and symptoms of secondary syphilis appear in due course. Primary sores on the lips sometimes simulate epithelioma. A comparison of the description thus given, with that of epithelioma given below, will suffice to show how the differential diagnosis may be made. The treatment is the same as that of syphilis acquired in the usual way.

Carbuncle of the lip is a much more severe affection than carbuncle of other parts. There is considerable doubt whether the disease is really the same. It usually affects the upper lip and begins as a vesicle or pustule surrounded by a red blush and swollen œdematous skin. The swelling rapidly extends, often involving the greater part of one side of the face. Suppuration takes place after a few days, and the skin in the central part becomes dusky, and the subcutaneous tissue breaks down into soft sloughs soaked in pus. The local sore is accompanied by very severe fever and signs of septic intoxication. Death may be due to septic absorption, or to infective phlebitis of the facial vein spreading to the intracranial veins and producing meningitis or general pyœmia. The disease sometimes closely resembles malignant pustule, but the black slough surrounded by vesicles and the

typical bacilli characteristic of the latter disease are not found in facial carbuncle. The treatment consists in making free incisions, scraping away all the sloughs and applying strong antiseptics. The patient's strength must be supported by generous use of stimulants and fluid nourishment.

Herpes of the lips has already been described (See Exudative Stomatitis).

Lupus vulgaris is very common upon the face, especially the nose and the neighbouring part of the cheek. It often affects the lips, especially the upper. It is a form of tuberculosis, its distinctive feature being the formation of nodules of granulation tissue in the corium. These nodules are soft, brownish-red and translucent, resembling apple-jelly. They are at first buried in the skin, appearing as small red papules on the surface. The papules gradually become larger, and the skin between them thickened and reddened by inflammatory infiltration. The patch thus formed may slowly undergo involution, leaving a smooth firm scar not unlike that of a burn. In the majority of cases, however, ulceration takes place sooner or later, producing a granular sore covered with greenish-black crusts, and surrounded by apple jelly nodules in various stages of development and disintegration. The disease may extend from the lips to the inside of the mouth involving the gums, palate and tongue. The lips may become adherent to the gums, and to some extent to each other, at the angles of the mouth, thus considerably diminishing its size.

The treatment consists in a complete removal or destruction of the diseased tissue by the application of caustics and the use of Volkmann's spoon.

TUMOURS.

Cysts frequently occur on the lips, they are due to distension of mucous follicles. They form small, tense, globular, semi-translucent, bluish pink swellings, containing a glairy

fluid. They should be dissected out, as they are apt to refill if they are simply incised.

Nævi are not uncommon. They may be recognized by their characteristic appearance and congenital origin. When small they may be touched with nitric acid or ethylate of sodium; when large and projecting on the mucous aspect of the lip they may be ligatured; when involving the whole thickness of the lip they may be dealt with by electrolysis or excision.

Adenomata occur in the lip as small globular elastic swellings projecting under the mucous membrane or sometimes under the skin. They are composed of glandular

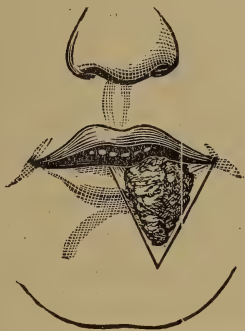


Fig. 56.—Epithelioma of lower lip. The lines of incision for removal are shown.

tissue resembling that of the glands found in the mucous membrane of the lips; sometimes however they contain nodules of cartilage. They may be easily shelled out through an incision through the mucous membrane.

Papillomata are common on the lip; they sometimes form horn-like projections. They should be extirpated with the knife as they have a tendency to become epitheliomatous.

Epithelioma nearly always affects the lower lip and occurs in men, being most frequently caused by the irritation of a

short clay pipe. It begins as a small crack, ulcer or indurated tubercle which may spread superficially along the margin of the lip or deeply into its substance. Eventually it forms a large mass involving the whole lip and adjoining parts including even the lower jaw; its surface is ulcerated and has hard sinuous and everted edges and a widely indurated base. The glands under the jaw become infiltrated, but not as a rule until the disease has lasted some six or nine months. Dissemination through the internal organs is rare. The treatment consists in early and free excision. This is usually best accomplished by a V-shaped incision, the margins of which are subsequently brought together with hare-lip pins and twisted sutures. The diseased glands in the neck should be removed at the same time. Sometimes it is necessary to remove a portion of the lower jaw as well. The results of the operation are extremely good as compared with those for extirpation of malignant disease inside the mouth. If removed early the disease may be completely and permanently cured. When recurrence does take place it is more often in the glands of the neck than in the scar.

Rodent Ulcer occurs in old people, mostly over fifty, and is twice as common in men as in women. It begins as a small papule or tubercle usually near the inner canthus of the eye, but occasionally on the lips or chin. After some time, perhaps years, the tubercle becomes a small ulcer with irregular sinuous edges, a depressed, pale pink, glazed surface devoid of granulation but often covered with a scab, and a slightly indurated base. The ulcer slowly spreads, although in places and at times, it makes feeble attempts to cicatrize; thus after many years the greater part of the face may be converted into a large and ghastly chasm. The disease is closely allied to epithelioma, but differs from it in that the epithelial growths start from the hair follicles and sebaceous glands instead of from the surface epithelium, and that the

epithelial cells are smaller and rounder and not so often or so distinctly grouped into cell nests. It is also much less malignant, its course being slower, and it having no tendency to infiltrate lymphatic glands or to disseminate in the internal organs. It does not recur after complete removal. The treatment consists in freely removing the disease with the knife, and the application of caustics to what cannot be thus removed.

DISEASES OF THE CHEEKS.

The chief surgical affections met with in the cheeks are abscesses, (either strumous or secondary to dental trouble), primary syphilitic sores, tertiary syphilitic ulcers, the different inflammatory affections described under "stomatitis," mucous and sebaceous cysts, lupus, epithelioma and rodent ulcer. Most of these affections are so much like those affecting the lips that a separate description is unnecessary, but the conditions described in the following paragraph deserves notice.

SALIVARY FISTULA.

This results from of wound of Stenson's duct. It consists of a small opening on the cheek from which saliva dribbles during mastication. The treatment consists in restoring the continuity of the duct and providing a free opening for it into the mouth, and then if the fistula does not heal, closing it by a plastic operation.

(To be continued.)

DRILLING SORE TEETH.—The pain is very much lessened by placing warmed modelling compound on both the buccal and lingual sides of the tooth, holding solidly against the tooth while the drilling is being done. *Dr. Gilmer.*

British Journal of Dental Science.

LONDON, JAN. 15, 1897.

MR. TREVES ON DENTISTRY.

MR. FREDERICK TREVES, F.R.C.S., has recently filled the post of Chairman at the Annual Dinner of the National Dental Hospital, and—as will be seen by reference to the last number of the JOURNAL—disburdened his mind of his opinions on dentistry. As it is well to know what other people think of us, especially when the criticism comes from one eminently fitted to form an opinion, we may do worse than comment upon a few points touched upon in the Chairman's speech.

In the first place Mr. Treves paid a fitting tribute to the progress which our specialty has made within the last few years. He admits that this progress has struck himself and other surgeons as little less than remarkable, and he assures us that we shall not find among our admirers a more appreciative body than his fellow surgeons. This is a very gratifying tribute, and we hope that we shall not rest on our laurels but endeavour to make our profession, both in its scientific, artistic, and ethical aspects as perfect as may be. Mr. Treves also dwelt upon the importance of the maladies dependent upon defective teeth. "It is really incredible," he says, "how many maladies that come to us, especially to surgeons who are consulted for troubles of the alimentary passages, for which the prescription is a set of teeth." He also drew attention to the fact that glandular trouble in the neck is often the result of carious teeth. This is borne out by the recent researches of Dr. Starck, lately published in these pages. Mr. Treves seems to be of opinion that the

science of dentistry seems to have made further progress than the art. We take it that he means that researches into the physiology, development and pathology of the dental structures have employed more time and attention than the operative and mechanical part of our craft. Lookers on see most of the game, and this may have been so. We think that there may have been a tendency to unduly magnify the purely scientific side of our work, and that sometimes the pupil, instead of devoting his whole energies to his mechanical training, has had his time and attention taken up with general hospital work. We cannot too strongly insist upon the fact that if a man is to be a good dentist, three years is not a day too long to devote his whole energies to mastering the mechanical portion of his craft. Any shortcomings in this matter are being rectified, and a practical test is now included in the examination. Mr. Treves is no believer in cheap dentistry. He says our curriculum is long and our work arduous. He thinks that "the dentist gives more work than any other man in the profession" for his fee. How the cheap advertiser manages he does not know. Perhaps we could inform Mr. Treves that very often the cheap advertiser is a much more expensive person to consult than the reputable practitioner. He also thought that the public often expected too much from the dentist, "they seem to expect the teeth to be absolutely indestructible, they must enable them to eat well, digest well, look well, and perhaps, after this life, to gnash well!" Teeth would not last for ever, and the man who had ruined his digestive organs could not expect to be put right at once by a set of teeth.

Mr. SPOKES, in commenting upon Mr. Treves' speech, said that the howling child dragged in to see the dentist was becoming a thing of the past. Gentler methods and nitrous oxide gas have taken away many of the former horrors of the dentist's chair, and very often our little patients are as interested in our work as their parents and friends. This speaker also alluded to the burning question of hospital abuse. It is very difficult to find out who are the deserving and who are the undeserving recipients of charity

but an earnest endeavour is always made at the Hospital to discriminate between those who can afford to pay a practitioner and those who cannot. The well dressed person may in reality be much more unable to pay than the rough artisan. The Dean also spoke in a very encouraging manner of the Students who are now flocking to our Dental Schools. They are being drawn from the same class of society as the Medical students, and their general education and behaviour is of a higher order than was formerly the case.

Mr. Treves in conclusion said there was an agitation among members of the College of Surgeons to be represented on the Council of the College. He was in favour of such representation, and furthermore he was in favour of dentists being also represented by members of their body. He remarked "that it was a most anomalous thing that they, dealing with Dental Surgery, have not a single dentist on the Council, and he thought that Dentists have a prior claim. He could only say that no person could be more cordially disposed to any movement in that direction than himself." We certainly agree with him that it is an anomaly, and hope that the time is not far distant when we shall not only have representatives on the Council of the College, but also on the General Medical Council.

A BOARD OF GUARDIANS' TRIBUTE TO THEIR DENTIST.—The Nottingham Board of Guardians is one of those bodies whose example we want to see followed throughout the length and breadth of the country. A little over twelve months ago they appointed a dentist to the Union School, and, like business men, at the end of his year asked him for a report of his work. It was as follows :

"Number of children examined during the twelve months, 506 ; number of extractions owing to severe pain, 37 ; of temporary teeth and for regulation purposes, 58 ; under nitrous oxide gas, 3 ; and number of teeth filled, 188."

It was decided to inform the Board that the experiment

had proved most satisfactory, and of permanent benefit to the children, principally owing to the highly commendable manner in which Mr. Taylor had carried out his work, and the committee had pleasure in recording upon its minutes such excellent results. As was stated in our last issue, we consider that every dentist holding such a post, should be required to keep a tabulated report of all work done, and submit it to the authorities.

A NEW METHOD OF COMMITTING SUICIDE.—We have recently noticed reports of two attempts at suicide by means of artificial teeth. The poor wretches tried to thrust their plates down their throats. The ingenuity of suicidal maniacs is proverbial, though they generally hit upon the most agonizing methods of shuffling off this mortal coil. Attendants upon the insane should be on their guard with suspicious patients wearing artificial dentures.

BLOOD POISONING AFTER EXTRACTION.—In our issue of last October 15th, we drew attention to two cases of death from blood-poisoning after tooth extraction, and our readers will have seen the report of the inquest at Harden upon a similar case published in our last number. In all three cases the dentist was exonerated from all blame, though in one medical opinions were divided. We must again warn our readers that if an adverse verdict were returned in any such case having a serious or fatal termination, the consequences to the dentist would be most grave. The strictest attention to cleanliness must be observed, not only, or even mainly, for our own sakes, but for that of the Public whose trusted servants we are. If our instruments after use are thrust for a few seconds into boiling water, and then into carbolic acid, there is no occasion to fear any untoward consequences.

TOOTH INSURANCE.—A correspondent writing to *To-day*, wants to know if there is an Insurance Company in which he

can insure his natural teeth. He is blessed with thirty-two teeth, which he says are like Trilby's, "as white as milk and as big as knuckle bones." He is also an enthusiastic footballer, and here comes the rub, or rather, the blow. If he has them knocked or kicked out (and if they are as large as knuckle bones they are bound to get in the way) he would want to be supplied with artificial substitutes. *To-Day* recommends him to apply to an enterprising Insurance Company, and throws out the suggestion that a football journal might make a feature—we intend no pun—of supplying their regular readers with teeth lost on active service in the football field.

DISCRETIONARY POWERS OF THE GENERAL MEDICAL COUNCIL.—In answer to a correspondent seeking information as to how to get on the Dentists' Register, *sine curriculo*, the *British Medical Journal* replies. "A certain amount of doubt still seems to exist regarding the registration of persons who had commenced their professional career prior to the passing of the Dentists' Act in 1878. To safeguard such people a clause was introduced by which discretionary power was given to the General Medical Council to deal with any cases which might from time to time be brought under their notice. In 1891, by a resolution of the General Medical Council, the privilege to register under cover of this clause was abolished, the order taking effect from July 22nd, 1891. For nearly twelve years, therefore, any such persons had the right to apply for registration, and those who thus neglected to avail themselves of the clause during the twelve years can only have themselves to blame."

ACTION AGAINST THE GENERAL MEDICAL COUNCIL.—As will be seen in another column, an action has been commenced in the High Court to test the validity of the action of the General Medical Council in refusing to place upon

the Dentists' Register certain persons who had memorialised it to exercise its power of dispensing with examination and curriculum in their favour. We understand the Council has already delivered its statement of defence. We hope to deal with this interesting subject more fully in our next issue.

A TOOTH IN THE EYE.—The late Dr. William Buckland the celebrated geologist, relates that the oculist he once consulted at Exeter informed him “that he once drew a tooth out of a patient's eye (literally an eye tooth) growing between the bony orbit and the ball of the eye, and that he had seen the specimen.”

DR. BUCKLAND AND THE SACRED RELICS.—When at Palermo he visited the shrine of Rosalia, the patron saint of the city, in which her bones were deposited in such a manner as to be seen by the pilgrims. Upon seeing these sacred relics, the Oxford professor exclaimed, “Those are the bones of a goat, not of a woman!” This bold statement caused so great a scandal that the priests forthwith had the precious relics enclosed in a casket to screen them alike from the adoring gaze of the faithful and the sceptical scrutiny of the heretic.

FOREIGN BODIES IN THE TONGUE.—Dr. Anderson, of Melbourne, after removing a piece of an amber mouth-piece one inch in length, and half an inch in width and thickness from the tongue, says: “Instances of the long retention of foreign bodies in the tongue are not so uncommon as might be supposed. In the *Lancet* of 1846, mention is made of the case of a German soldier who received a bullet wound, passing through the cheek, jaw, tongue, and out of the mouth on the opposite side. The wounds healed in a few weeks, but repeated suppuration occurred in the tongue, and 32 years after the original injury there was extracted from the substance of the tongue a molar tooth.”

Abstracts of British & Foreign Journals.

A FEW PRACTICAL HINTS TO MEDICAL MEN ON THE PRESERVATION OF THEIR OWN HEALTH.

By JOHN W. TEALE, M.A.Oxon., F.R.C.S.

I propose this evening to offer a few practical suggestions as to how each of us may do something to take care of his own health, which is of some considerable value, not only to our families and our patients, but to ourselves. One is often struck in reading the addresses delivered to students at the opening of the October Sessions at the vast variety of suggestions that are made as conducive to success. But when I ask what, in my experience, would most conduce to the success of a general practitioner, I should say power of concentration and command of temper.

By power of concentration, of course, I mean that power by which a man, however wearied, instantly on entering a house is able at once to abstract his brain from everything that has gone before, and to concentrate his mental faculties on the case that is before him. Patients are naturally somewhat selfish, and are very quick to observe if they do not get full attention, and if, when the finger is on the pulse, the mind is with the patient that preceded him.

Secondly, command of temper. To the quick, high-strung sensitive man, exhausted by the worry and anxiety of daily life, thorough command of temper with testy, querulous, exacting patients can only be obtained by rigid self-control commenced in early life. To be for ever bearing in mind that the patient is the sufferer, that testiness and ill-temper are due to physical weariness and distress, and not to disloyalty to the doctor, is a task that will try the strongest nature.

If, then, concentration and command of temper are essential to success, how can they best be cultivated and obtained? Surely by living as far as possible a simple, healthy out door life, in constant physical training. Young men now-a-days, as a rule, at some period of their student life pass a year or two in a high state of training, but how many of them, amid the worries and distractions of a busy practitioner's life, keep

up that condition of training to mid-life, still less to old age? Why should a man become stout and short of wind because he has reached fifty? Simply because he is struggling with his life-work when his physical condition is not fit to grapple with it.

The whole subject of physical training and its usefulness in moderation was brought prominently before me in my Oxford days by my late friend Archibald McLaren, whom I look upon as the pioneer of modern and rational gymnastics. I well remember being selected as one of three light-weights, in conjunction with several heavy-weights, to show off the new gymnasium to a squad of Army sergeants from Aldershot under Major (now General) Hammersley, and how in a month they were sent back with largely increased biceps and largely reduced abdomens. This was, I believe, the beginning of regular gymnastic training in the British Army, the result of which you have seen at the military tournaments at Islington.

For two years also I steered my college crew. It was then customary for the coxswain to take charge of the training of the crews, and he was expected to be in such training himself that he could take an oar at any time while the captain coached. I learnt then, and have never forgotten, what ease it gives to daily work to be in good condition, and have done my best to remain so ever since.

May I offer you now a few suggestions to show how easily this may be carried out? Assuming that a man is physically sound, and has cultivated athletic exercises in youth, it is quite surprising how easily that condition can be maintained provided only it be done regularly. I am told that the "strong men" who exhibit in public rarely practise their feats in private, and rely on light dumb-bells to keep them in good condition.

For most men light Indian clubs, or the Ranelagh, or exercises on both of them, carried out systematically night and morning, will do all that is needed. It is surprising what a rest, after a hard day's work, some active physical exercise with the arms will be found to be. It is a mistake to suppose that the busy man wants a great deal of physical exercise. His ordinary day's work, with what it involves in taxing mind and body, is generally nearly enough for him, with some physical exercises as I have suggested. It is always well to have something in hand, for extra strain comes most unexpectedly. It is well to cultivate the art of sleeping for a few minutes at any time. A man can only live safely

on the interest of his vital strength. Any withdrawal of principal should be promptly replaced.

Food.—For a sound man everything that is good is wholesome, taken at proper times and in proper quantities. You should teach your stomach to understand that within these limits every good thing well cooked is good for it. After a man is twenty-five or thirty he only wants as much food as will maintain his weight, and not add to it. It is possible to be too busy to dine, in which case a cup of soup, or a sandwich and glass of wine, is better than a hearty meal. A good dinner implies leisure for digestion. Half-an-hour's leisure before dinner will often enable a man to eat a hearty meal. For most medical men I believe a late dinner is preferable, for if taken in the middle of his work either the meal or the patients must suffer. The fewer the meals the better the health. Two good meals and a moderate one are enough for most healthy men leading a busy life.

Stimulants.—Mix your wines by all means, provided they are good, and you do not take too much of them. Spirits are useful when jaded or exhausted as a change from wine at dinner, but are unnecessary and hurtful when taken between meals or at bed-time, except for special reasons; 365 glasses of whiskey taken in one year at bed-time are an unnecessary and severe tax on the liver when its work is in full swing.

Baths.—An ordinary healthy man may have a cold bath daily almost up to any age, but as the object is not only to get up a reaction, but to keep it, most hard-working men require that cheapest of all luxuries, a fire, in the dressing room, and a hot bath towel. If this is followed by a course of Indian clubs in his flannels, a man will be fit to face any weather.

Clothing and Colds.—The same underclothing should be worn summer and winter of wool, and only the outer clothing varied. Colds are generally caught either in ill-warmed rooms or through ill-protected feet. With good Jaeger boots and putties, as the serge leg-rollers are called which were introduced by the 10th Hussars from Afghanistan, you will be able, with a good overcoat to drive with impunity in an open dog cart on the top of a Yorkshire wold in a blizzard, especially if you have laid in a store of caloric before starting, by breakfasting in the wraps in which you propose to travel.

If chilled through by a cold drive in the open, walk home, if possible, for the last mile or two, keeping on your heavy wraps to restore circulation. If you are called on a cold

winter's night to a country house at a distance, from which you have to catch an early train in the morning, by tipping the butler you will have a fire lit in your room early, and a breakfast tray brought up to you, and you will then be in a position to defy the awful marrow-searching cold in a foggy frost of a railway carriage which has spent the night on a siding.

Light your fire whenever you can endure it; it is the cheapest and best health-giver in the world, especially in cold thundery weather in the summer. With a well-arranged room, and a well-contrived fireplace, most healthy people can learn to sleep with their window open winter and summer.

Teeth.—No medical man should ever have a bad tooth in his head. He is courting disaster if he does so. To avoid this I would suggest that he be regularly inspected by his dentist before going for his holiday. It is a simple matter to brush the teeth after every meal, and by rinsing with cold water you get an early intimation of danger.

One word about holidays. Every medical man, if possible, should have an outdoor sport of some kind. Golf and cycling are good, but perhaps the best of all is fly-fishing. It takes one usually into beautiful country, the exercise is gentle and varied, the interest absorbing, and to my mind is far better for the jaded practitioner than scampering half over Europe in a hurry in a second-class railway carriage in charge of a party of tourists.

Gentlemen, I might go on for ever, but I will bring my remarks to a close. I can fancy some of you saying, "These suggestions are all very well, but do you carry them out yourself?" Well, honestly, I do not always, but when I forget them I regret it, and I have reaped health and happiness by carrying them out in the main. I feel it is presumptuous of me to address you on a subject of which you all know as much or more than I do myself, but if any suggestion of mine should have the effect of making any one of you take more care of yourselves in any one particular than you do at present, I shall be amply rewarded.

British Medical Journal.

DEFORMITIES AND DISEASES OF THE TEETH
OF THE HORSE.

By ALEXANDER C. PIESSE, M.R.C.V.S.

At times the teeth of the horse present deformities, although these usually do not detract from the animal's value; but there are exceptions. Parrot-mouth, so called from its resemblance to the beak of a parrot, is frequently seen. The upper pincers, or incisors, project over the lower ones, the teeth become inordinately long in consequence of there being no friction between them as in a normally-shaped mouth. Although this irregularity is of no consequence in stall-fed horses, if horses with such teeth are turned out to grass, they find difficulty in securing provender, as the incisors act as the means of prehension; hence the condition must be regarded in some sense as detracting somewhat from the value of the animal.

At times the teeth of the upper jaw are considerably wider from side to side than those of the lower; consequently friction does not take place evenly, and the lower molar teeth eventually present a ridge, and this may injure the tongue or cheeks, causing soreness, imperfect mastication, "quidding"—that is, the food is rolled into a ball or mass with the saliva, is dropped out of the mouth, and found in the manger. The remedy for this is to rasp the rough edge until it is level, or nearly so, with the other portion of the tooth. This must be repeated at intervals. The animal's corn should be crushed.

The incisor teeth also present irregularities, though these are usually of little consequence; but, if the irregularity should in any way interfere with the soft structures around it, causing bruising or imperfect mastication it must be rasped to a proper size, or, if necessary, removed altogether. Sometimes the length of the row of molar teeth does not correspond with that of those forming the opposing row; one or more of the teeth, therefore, do not become worn in the ordinary manner by coming in contact with its fellow of the other row. The result is that it becomes longer and is a source of considerable trouble. In such cases the projecting portion must be chiselled off, which is not a difficult matter when the projection is situated upon the anterior molars, but if its position is more posterior it is not accomplished without difficulty. The animal should be cast.

The teeth at times are not placed as close together as they should be, and consequently food accumulates in the interstices, causing irritation and inflammation of the gums. The mouth being sore, mastication is imperfectly performed, and all the attendant ills of indigestion follow. An examination of the mouth will at once reveal the cause. Unfortunately, treatment in these cases is not of a permanent character; but the accumulations of food must be removed. This can be done by means of a long, narrow brush; and the mouth should be gargled with weak Condyl's Fluid. This must be repeated at intervals.

Horses sometimes become the subject of decayed teeth; the molars are invariably those affected, and the cause can be attributed to obliteration of the pulp-cavity at too early an age. The cavity is obliterated, or nearly so, in old horses, and the nourishment for the tooth is derived from another source; or it may depend upon accumulations of food between the teeth, as already explained.

Decay of the teeth is shown in the horse by manifestations of pain. The animal may feed for a time, then suddenly stop, holding its mouth partly open, and allow the food to fall back into the manger. Again the food may be "quidded." Upon looking into the manger, half of the food may be found wet, from having been in the mouth, and then expelled. The horse also moves its jaw from side to side, clearly showing that pain is felt in the mouth. The bone of the jaw immediately opposite to the affected tooth may become enlarged, as the result of the formation of an abscess. When decay takes place in the upper molars, there may be a discharge from the nostrils, and also an enlargement of the bone externally, as in the case of the lower jaw. The teeth of the horse can be extracted, but the usual method is to trephine at the base of the tooth, and then use a punch and mallet, and so remove the tooth.

Many owners will have noticed that horses at four years old are frequently the subject of a cough. At this age the third temporary molar is being replaced by a permanent one, and the last molar—the sixth—is also being cut. There is always a certain amount of irritation during the process of cutting the teeth; at times it is very slight, but often well pronounced. In the latter case the irritation may extend to the larynx, and so cause a cough. In these cases it is well to give a dose of physic (3 drs. to 5 drs. of aloes), and wash the mouth with Condyl's Fluid: this will effect a cure, or, more

correctly, act as a palliative until the process of dentition is complete.

Again, horses at the age of three and four years, in consequence of the teeth being in an active state of cutting, become the subject of constitutional disturbance. Fever, more or less pronounced, is present, the animal refuses its food, and upon examining the gums they are found to be red and swollen. This condition may be brought about by the temporary teeth not shedding normally, and preventing or delaying the eruption of the permanent ones. The animal should be fed upon sloppy food, and a dose of physic (3 drs. to 5 drs. of aloes) given. If food is given that requires grinding, it will be imperfectly accomplished, and received into the stomach in a state unfitted for proper assimilation, causing indigestion and diarrhoea. Small teeth of an undeveloped character are sometimes found immediately in front of the molars; these are known as wolf's teeth. They cause no inconvenience, and are best left alone.

Exchange.

MEDICINE AS A MORAL AGENT.

Whereas formerly the sulky, stupid, or ill-tempered boy was commonly relieved of such distemper by the master's rod, it is now believed by a certain school of psychologists that with the judicious use of internal remedies his case is better reached than by this time-honoured method of counter irritation. A clearer insight would discover the salutary effects of a dose of castor oil in many instances. The writer once knew the wife of a physician who habitually administered purgative doses of calomel to her two little boys with the sole intention of improving their dispositions. No less an authority than Dr. Lauder Brunton has directed the attention of the profession to the fact that many quick-tempered persons are really victims of masked forms of gout or rheumatism, and may be relieved by appropriate remedies which he has facetiously called temper powders.

Medical News.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting held December 7, 1896. Mr. Robert H. Woodhouse, M.R.C.S., L.S.A., L.D.S. Eng., President, in the Chair.

The PRESIDENT, before calling on the Secretary to read the Minutes of the last meeting, drew the attention of the members to the sad loss that had been incurred by the Society in the death of Sir Benjamin Ward Richardson. As representative of the Society he (the President) attended the funeral ceremony as he felt it was his duty, and the least that could be done to the memory of so great and honourable a man. Dr. Richardson was an honorary member of the Odontological Society, and showed his interest in the Society up to the very last, his name being down for a communication to be read early in the new year. The Council had empowered him as President to write a letter of condolence to Lady Richardson and the members of the family, expressing the great regret of the Society at the loss occasioned by the death of so distinguished a man. He felt sure that that action of the Council would meet with the approval of the members.

The Secretary read the Minutes of the last meeting.

Mr. F. Lawson Dodd and Mr. Harold Dewe Matthews signed the Obligation Book.

The following gentlemen were proposed as members of the Society. As non-resident members:—Wilfred William Gabell, L.D.S. Eng., Chiltern Villa, Station Road, New Barnet; A. T. Hilder, L.D.S. Eng., 83, Edmund Street, Birmingham; John George Wallis, L.D.S.I. and Glasg., 33, Albion Street, Hull. As resident members:—Alick Condell Strand, M.R.C.S. Eng., L.R.C.P. Eng., Helenslea, Child's Hill, N.W.

The Librarian (Mr. W. A. Maggs) reported that he had received the usual journals, periodicals, and exchanges, and that Messrs. C. Ash & Sons had presented Mr. J. F. Colyer's work "On the Extraction of the Teeth."

The Curator (Mr. Storer Bennett) said he had to acknowledge the receipt from Mr. Horace Farebrother of a mandible which had been dug up near Old Sarum, and was supposed to belong to an Anglo-Saxon about 547 A.D. The arches were very well developed, the teeth extremely well formed, and there was absolutely no trace of caries. The teeth showed a certain amount of wear from mastication, and the third molars, which were unerupted, were somewhat misplaced: but as the third molars are often developed in a very different position to that in which they eventually erupt, Mr. Bennett hesitated to say that the one on the right side of the jaw was abnormally situated. On the left side, however, the tooth was undoubtedly in an unusual situation, and it was very possible he thought, that that tooth might tend to become eventually an impacted third molar.

CASUAL COMMUNICATIONS.

Mr. HARDING brought before the notice of the members the new antiseptic formalin which he had been using in the treatment of septic roots. He said it was quite as powerful as corrosive sublimate, if not more so. In a very diluted form it would destroy germs of anthrax and typhoid. In the treatment of root canals he had used it in the proportion of one in five. It was not, like corrosive sublimate, at all poisonous, and though slightly volatile it would not decompose. Those members who had not used it he thought would find it of very great service. The gentleman who brought it before his notice was a chemist who had devoted a good deal of his time to bacteriology, and he considered it to be a most potent germicide.

Mr. STORER BENNETT asked Mr. Harding whether when he said 1 to 5 he meant actually 20 per cent. formalin, or 1 in 5 of the substance which was sold. Formalin or formaldehyde was sold as containing 40 per cent. of the substance formaldehyde, and it was very powerful. It was an escharotic, and would at once form an eschar on the skin or the mucous membrane with which it was brought into contact. He had used formalin for some two or three months, but he had never used more than 4 per cent. of formaldehyde. As a substance for wiping over wounds that were very unhealthy, or sloughing and tending to look phagedenic, it was exceedingly good. It should not be used over any length of time, but simply swabbed over the wound and the patient's mouth syringed out directly afterwards; if this were not done it

led to a very irritating burning sensation. It was also exceedingly useful for hardening tissues for making microscopic sections. It had the remarkable property of enabling tissues, even in such large masses as an entire eye, to be sufficiently hardened in twenty-four hours to allow a section through all the coats without displacing any of them; and it also had the property, in hardening them, of not allowing them in any way to become contracted. It was, therefore, quite unlike alcohol or corrosive sublimate. For those who were engaged in histological investigations formalin was one of the most valuable of the new preparations, and, like many other new chemical substances, it was a synthetic compound. He thought very likely that if pulps were dressed with formalin they might be sufficiently hardened to be withdrawn in the way suggested many years ago, after they had been subjected to the use of strong tannic acid. The pulps would then be able to be withdrawn in a tough leathery state. His only fear was as to the amount of irritation which anything like twenty-four hours' soaking in the substance might produce. On the gum even one or two minutes of the application of formalin produced so much burning that he doubted whether it could be used as a pulp dressing at all.

Mr. HARDING, replying to Mr. Bennett, said he used 1 in 5 of the ordinary formalin he obtained from the chemist, 1 of formalin and 5 of water. He did not use it at that strength for gum or soft tissue treatment, but purely as a germicide in septic roots. Occasionally it got in contact accidentally with the tongue or the gum, but if the rubberdam were used no such risk was run. He had found if he touched the tongue that it produced a considerable burning sensation, but had never found any ill-effect from it.

Mr. H. LLOYD WILLIAMS asked Mr. Bennett what strength he used formalin as a hardening solution for microscopic work, and what strength he would recommend for applying it to the pulp?

Mr. STORER BENNETT said he had not himself ventured to use it for pulps. With regard to histological work, 4 per cent. was the strength.

Mr. WILLIAM HERN presented, on behalf of Dr. Hogue, a set of teeth curiously covered with tartar. In a letter asking the acceptance of the specimen by the Society, Dr. Hogue wrote: "These teeth belonged to an old farmer in Scotland, and were removed from his mouth when on his

death bed, and given to me by his brother. The teeth were made by the late Robert Hogue of Edinburgh, my father."

A communication on "Electric Annealing of Gold," from Mons. P. Hv. Poinset, was read by the Hon. Sec. :—

At a recent meeting of our Society, Mr. Boyd Wallis recounted an interesting process for annealing gold, in which warmth is obtained by an electric lamp. I am happy to send to-day to the Society the result of attempts I have made on the same subject, which may be of some interest to the members.

During last year I presented to the Congress of Bordeaux under this title: *Action galvanique des appareils métalliques dentaires* (Galvanic action of the metallic apparatus, an essay on the remarkable and important molecular modifications that occur in the constitution of metals by electric currents of sufficient intensity. The question dealt with there was with respect to metals in general, considered chiefly as prosthetic materials, and I reserved the point of gold considered as a filling. I have completed the investigations which I had already then commenced, and I propose to lay them briefly before you.

I make, for the prosthetic apparatus, use of a 110 volts, with an intensity from 80 to 100 ampères. Such currents will volatilize gold foils, for the ampèrage must be in direct ratio to the section of the metal amenable to electric treatment. I do not exceed, in consequence, two and a half ampères. I make use of gold foils, No. 3, that are supplied to me by S. S. White & Co. Every sheet is cut in two parts and rolled into a rope or folded into tape as it may be required. Then each piece of rope or tape is cut in two equal parts, and each extremity of every string so formed is placed on two flat posts (*bornes électriques*), one fixed, the other being movable, in order to apply to the variable length of the strip; through this gold passes an electric current, growing progressively from 0 to 2.5 amperes—the operation lasts half a minute. The gold is then cut into pieces of suitable size for use as a filling. It is possible to use it at once, or keep it for use. In the latter case it is very important that it should be kept in a small box, very clean and well closed, and, besides, it will be found prudent to pass it lightly above an alcohol flame before using it. Gold so treated has remarkable properties. It keeps the whole softness and malleability of soft gold. Every morsel is spread out with facility, without any tendency to shrink; it is thoroughly

pliant under the pressure of the instrument, and does not tend in any way to curl away from the walls of the cavity in which it is pressed. Whatever may be the size of the used piece, it does not harden at its surface as cohesive gold commonly does, but yet possesses, to a superlative degree the cohesive properties. In a word, it realises fully the ideal sought for in vain until now; the easy adaptation of soft gold united to the resistance of cohesive gold.

I think, therefore, the electric treatment of gold very important, and destined to produce a modification in the gold more weighty and more lasting than the one the various crystal gold had made us hope.

Mr. J. H. RUDMAN, in bringing forward the following case of retarded dentition, said: I wish to bring before your notice a most interesting case of retarded dentition. The patient, a young lady, was brought to me about six years ago when she was 20. At that time none of the incisors had erupted, and only one canine, one bicuspid, and eight molars were present of the permanent dentition; these latter were very stunted and of miserable structure. The absence of so many teeth was naturally a great disfigurement, and debarred the patient from going into society, as she was very anxious to do. Her parents had been waiting, hoping the teeth would make their appearance. I made a thorough examination with a sharp point through the gum, but could detect no teeth through the alveolar border, nor was there any appearance of bulging of the bone to indicate the presence of teeth underneath. I therefore advised the immediate insertion of artificial substitutes. As the molars were very short and the jaws being brought too close together, I capped them with gold crowns in order to raise the bite. About six months after wearing the plates a swelling appeared on the left side of the upper jaw in the region of the central incisor; this gave only slight discomfort. I lanced it freely, and found a miserably malformed tooth. I proposed crowning it, but it failed to erupt. Everything went on well until about six months ago, when the patient complained of severe neuralgia in both jaws, and a hard swelling had in the meantime appeared well up under the lip at the base of the nose, this upon examination proved to be one of the missing teeth. I lanced freely and found it in such a position that it could never come into its proper place, so I decided to remove it, and also make a thorough examination of the lower jaw as well. This was done, with the result that I discovered two

lower incisors lying at an angle of about 45° outside the median line; these were removed, and to carry this out I cut away the alveolar process to a considerable depth. After I had removed the incisors I found a canine lying under them, almost parallel with the base of the jaw. I had great difficulty in extracting this, as I was obliged to cut away a considerable amount of bone. I have no doubt that the pressure of the plates caused the effort to erupt, and by reflex irritation produced the neuralgia, but why it took nearly six years to induce the pain I cannot explain. The mother was about 50 before the bicuspid on the right side of the lower jaw made their appearance but they have never come into proper position. A cousin on the father's side has also teeth missing in the bicuspid region of the upper jaw, but I am not sure of the number—I think two on one side and one on the other. From what I can learn the first dentition was perfectly normal. I need hardly add that the neuralgia is completely cured.

Mr. SIDNEY SPOKES asked Mr. Redman whether he had considered the advisability of using the x rays in connection with the matter.

Mr. REDMAN said he had tried to use them but had miserably failed, and that was why he did not refer to them in his communication.

Mr. F. J. BENNETT asked whether the temporary teeth were retained beyond their usual period. It was not uncommon to find that where the permanent failed to erupt, or were slow to erupt, the temporary teeth had a much more prolonged existence, and there might be a connection between the two.

Mr. HERN asked whether the patient had any taint of rickets.

Mr. REDMAN said the patient did not come into his hands until she was 20, but he asked the mother, who said that the deciduous teeth came out about the usual time, commencing at 7, and continuing in the usual order. With regard to Mr. Hern's question, the patient was somewhat stunted in growth, but there were no definite signs of rickets. The patient was very well developed, although somewhat shorter than her sisters.

Mr. SIDNEY SPOKES said: Some short time since I received in exchange some lantern slides from Dr. Grevers, of Amsterdam, who will be remembered by some of the members as having given the Society a communication upon "Hypoplasia of Enamel." The pictures I show are taken from specimens in University College and other Museums, and

I cannot but think that in London alone there must be many instructive cases which might be brought before us in "Casual Communications," by the aid of the lantern, as members have few opportunities for going to search these things out for themselves.

(1) The first specimen illustrates, I think, very well what we must expect to happen when a portion of the mandible is removed. If the ends of the bone unite, the teeth on either side are approximated, and the masticating surfaces are brought so far inside as to prevent articulation with those of the upper teeth. In this case it is seen that the first bicuspids very nearly meet, and all the teeth are inclined inwards.

(2) The next slide shows a front view of the same specimen. The members of the Society will doubtless have in mind the suggestions of Mr. Stanley Boyd as to the desirability of devising some means by which the two portions of the jaw should be propped apart during the healing process after such an operation.

(3) It is customary to remind students that the mandible may undergo an alteration from the normal growth from the formation of cicatrices after burning. This slide shows how long-continued pressure from within has caused the anterior part to be mis-shapen in consequence of an erectile tumour of the tongue. The anterior half of the jaw, as is evident from this profile view, is depressed, part of the alveolar process has been absorbed and the incisor and canine teeth point directly forwards.

(4) A view from above shows that the displaced teeth upon which the front of the tongue rested are thickly encrusted with tartar. The patient was a man 19 years of age. Frequent bleedings occurred from ulcerated parts of the surface of the tumour, which was ligatured. Death resulted from the operation.

(5) The next specimen is thus described in the Museum Catalogue :—"The bones of the face, with adjacent portions of the frontal, sphenoid, and temporal bones. The external table of the frontal bone is irregularly destroyed and undermined by ulceration, which in places, has penetrated more deeply into its substance; on each side the lower part of the frontal sinus has been opened. Areas of bone insulated by the ulceration which has spread round them, and unaltered in appearance, remain scattered over the ulcerated surface. Of the nasal bones no part remains; and after considerable destruction of their surfaces, the nasal processes of the

superior maxillary bones, together with the front of the hard palate and adjoining portion of the alveolar border, have been almost completely separated after necrosis, being connected only by two slender pedicles near the inner margins of the orbits with the bone around. From a female patient doubtless suffering from syphilis. She had taken much mercury. Some doubt as to the syphilitic nature of the disease is expressed in the original description of the specimen, because the hymen was found after death to be perfect."

(6) Another specimen, from a French museum, shows still greater destruction.

(7) Another skull, of which I have no history to explain the missing part of the mandible, serves to show an extreme instance of hypoplasia of the enamel.

(8) A skull showing the right upper canine tooth to have erupted obliquely into the nostril on that side, with the crown resting against the septum.

(9) "The left ramus of a lower jaw, with an adjoining part of the body about two inches in length. Immediately in front of the ramus the body of the jaw, with the exception of its lower border, is expanded by the growth of a small myeloid tumour, which has protruded above through the alveolar process so as to form a second superficially lobulated and somewhat flattened mass, covered with mucous membrane, and overhanging that part of the growth which is enclosed by the bone." Removed by Mr. Liston.

(10) "The part of the right half of a lower jaw behind the canine tooth. The ramus and body of the jaw, as far forwards as the second bicuspid tooth, have been expanded by the growth of a tumour between their tables; the inner surface of the body and posterior border of the ramus are unaltered in form; the chief deformity of the body has occurred outwardly. The surface of the swollen part is somewhat lobular; over the upper and posterior half of the outer part of the swelling the osseous shell is absent, the tumour being, in these situations, bounded by a layer of fibrous tissue, formed apparently by the periosteum. In the situation of the coronoid process, which has been widely expanded in every direction, the substance of the tumour has been exposed by the removal of the bony shell which covered it: the growth is composed of a soft pale yellow, fibrin-like substance, probably myeloid in nature, parts of which appear to have fallen away. The

tumour fills the neck of the jaw, which is expanded upon, and in places has been removed over, this portion of the growth: the condyle is unaffected. By the enlargement of the coronoid process the sigmoid notch has been completely obliterated. From a female, 20 years of age, who suffered many years from toothache, the enlargement of the jaw having commenced three years before the operation and after the removal of a decayed tooth. The tumour was painful only occasionally, as when she caught cold; the pain was lessened by her making the swelling bleed. Escharotics were applied on many occasions. The parts shown were removed by Mr. Liston and the patient perfectly recovered."—*Lancet*, Vol. 1, 1839-40.

Mr. J. F. Colyer read a paper on "Open Bite," which is published on page 49.

DISCUSSION.

Mr. CURNOCK said he had recently a case of open bite under his care. The patient was a boy 12 or 13 years of age, in which only the posterior portion of the second molars articulated. The first permanent molars were badly decayed, and the first thing he did was to take them out. He did not then do as Mr. Colyer had advised in his paper, namely, grind down the cusps, but waited for a time to see what would happen. He saw the boy again a year afterwards and found that the second permanent molars had come well forward, and that the open bite was perfectly cured—so much so, that one of the laterals would have to be regulated to bring it over the bite, as it was now inside the lower incisors. When that was done the case would be as perfect as possible for it to be, and that without the use of the skull or chin cap or grinding down the cusps. Before such things were done he thought it would be advisable to wait a little and see what would happen. Another thing that impressed itself upon him was that though the extraction of the first permanent molars produced such results as it did in the case he had mentioned, members ought always to think twice before extracting such teeth. He was well aware of the controversy that existed with regard to the extraction of the first permanent molar and the bicuspid in crowded mouths; and he thought that when thoughtlessly and heedlessly extracted, it often produced disastrous results.

Mr. H. G. READ asked Mr. Colyer if he could help him by explaining two cases he had recently had in which the bicuspid and molars on one side had failed to articulate. In

one case, the first molars were absent, and there was a wide space between the second upper and lower bicuspid and second molars, the third molars, and the first bicuspid only articulating. He found that the space was too much to be cured by crowning the molars and bicuspid in one jaw only, so he had to crown both the upper and lower, and he brought the crowns so as to cover the space due to the extraction of the two first molars. The other case was very similar. On one side the articulation was perfect, and on the other there was a wide space. He had now under treatment the case of a young lady who applied to him some five years ago for treatment of open bite. He tried the skull cap and chin cap, but he could not get her to wear it night and day. He lost sight of her for a time, and when she returned her mouth was in a bad state, necessitating the removal of two or three of the molars; the anterior cusps of the left upper second molar and left lower second molar were the only teeth in contact. He ground the cusps down to a certain extent and made her an articulating plate, simply covering the molars and bicuspid on either side, connecting the two sides by a bar of gold passing behind the lower front teeth. The vulcanite did not wear well, and he made her a plate somewhat similar with gold articulating surfaces which she wore with very fair comfort.

Mr. REDMAN said he had amongst his patients four sisters with open bite, the ages of the patients varying from 18 to 23, two of them being twins. All four had enlarged tonsils and were mouth breathers, and he attributed the deformity entirely to that reason. He could trace no evidence of any bad habit of thumb sucking. The eldest girl he had treated by crowning the anterior teeth, and he would probably do the same for the others when they came under his care again. All the teeth were honeycombed and altogether most miserable in structure. No doubt, as Mr. Colyer had suggested, by the cutting in of the bite and crowning he would be able to make good mouths.

Mr. STORER BENNETT said Mr. Colyer's explanation of the deformities might be accurate, but the anatomical slide he had shown seemed to point to a little weakness in the argument he brought forward. Mr. Colyer stated that as a rule the bending of the lower jaw took place at the anterior margin of the masseter muscle, and he pointed to the place where the bending of the jaw took place as being an approval of the correctness of his statement. But he (Mr. Storer

Bennett) thought if the members took themselves as anatomical specimens, and traced their fingers along the anterior borders of the masseter muscle, they would find that the anterior border was always considerably forward of the place indicated in the anatomical specimen. Then again, Mr. Colyer said that the drawing up of the back part by the masseter muscles, and the drawing down of the anterior part by the muscles which were employed in opening the jaws, would induce a downward growth of the lower jaw. If that were the case, they would expect to get a symmetrical bending down of the jaw, but as was seen, the open bite extended as far back as the front of the second molar in the lower jaw on one side to the canine on the other side, and there was no indication whatever that there was anything approaching an open bite on that side. In the specimen it was an absolutely symmetrical condition. He did not for one moment state that Mr. Colyer's explanation was not a correct one, but only that the slide did not bear out the explanation he gave.

Mr. MAIN NICOL considered there was another cause of open bite which Mr. Colyer did not touch upon. In many cases the obstruction to occlusion was caused only by the antagonism of the second molars, but the second lower molar, as Mr. Colyer had pointed out, seemed to be situated on a sort of "rising up" of the jaw. It appeared to him in such examples they had a crowding of the jaw in which not the anterior but the posterior teeth suffered, and so the second molar erupted in a position very similar to that of a third molar—it was higher up than the rest of the teeth, and its biting surface was directed forwards as well as upwards. In that case the extraction of the first molars would allow it to come to its normal position.

Mr. ROBBINS said he had been thinking of the case mentioned by Mr. Curnock. In the absence of models one could not say very much, but if Mr. Curnock had got his case perfectly right without grinding down the cusps of the teeth, then he would ask him, was it by a considerable tilting forward of the second permanent molar? If so he should rather be inclined to cut down the bite somewhat and apply nitrate of silver. He saw no reason why nitrate of silver should not be applied at the back of the mouth. By judiciously grinding every three months the cusps of the back molars one would get a more perfect occlusion than if the teeth were leaning forward. Perhaps Mr. Curnock would tell the members whether the teeth in his case did tilt very much forward.

Mr. CURNOCK said he regretted he did not bring the models. The teeth had certainly come very considerably forward, and he had no doubt that by this time they would have come still more forward; but there was not that amount of tilting which was often seen after the removal of the first permanent molars. There was not perfect articulation of the second permanent molars, but there was good articulation of the bicusps and incisors.

Mr. W. A. MAGGS said the first models shown on the screen looked as if rather heroic treatment had been adopted in taking out the second permanent molars to allow the mouth to close, seeing that the open bite was due to the wearing of a regulation plate. If one could criticize the case without seeing the patient he thought it would have been better to have left the patient alone to see what happened. The tendency would be for the second permanent molars to be depressed in their sockets and for the remaining teeth to rise, so that the necessity for removal of the teeth might not have occurred. With regard to Mr. Colyer's ingenious suggestion as to the open bite being due to muscular action, he believed there was something in it. It was not only the masseter muscle which acted on the ramus, but the temporal and internal pterygoid also tended to pull that portion of the mandible upwards.

Mr. BALDWIN said that Mr. Colyer was good enough to say he was indebted to him (Mr. Baldwin) for the term "open bite," but he wished to give credit where credit was due, and to state that he met the term in several articles in some of the German dental journals, and had translated it. So far as its importation into English was concerned he believed he was the first to do that, but the term really originated, he thought, with Herr Schmidt.

Mr. CUNNINGHAM thought that Mr. Storer Bennett's remarks about the anatomical relations were very sound and practical. He would be sorry if the members should endeavour to come to anything like final conclusions from the anatomical specimen on the screen, because after all it was only a photograph of what the draughtsman had been able to give them. It was a wood engraving and he did not think anyone should lay any stress upon the position of the notch, because its position and magnitude might simply be the work of the wood engraver and nothing to do with the specimen. While they were discussing the problem with regard to the bone itself would it not be well to have some

regard to the problem of the forces compounded by the numerous teeth, their cusps and relations, and so on. That was one of the really complex points with which they had to deal, and was the foundation of all scientific treatment of irregularities. He thought that in the problem of the teeth the absence of a tooth or cusp would account for very many asymmetrical conditions sometimes seen. He was not satisfied by taking symmetry alone as the explanation of the rightfulness or wrongfulness of the specimen they had on the screen. The cases he had had to treat had been very few and had been treated entirely by the cutting down process. With regard to that process taking a long time, nitrate of silver certainly went a long way further than spirits of wine, and the rapidity of cutting down the teeth had a good deal to do with the mental power of the operator over the patient and the desire of the patient to get the work done. They could achieve great results in apparently a much shorter time than many practitioners recognised. With regard to the crowning and so on, that occasionally came in; but the most practicable plan he had seen, had been that just mentioned. There was a point which had not been mentioned. In exceptional cases provision had been made for pulling up teeth when they had been unerupted. It would be a difficult thing to make an appliance to raise the number of teeth required, but the attempt had been made. Personally speaking, he had not had much experience, but he rather thought it would be a slow process. It was in the hospital that the discovery would be made how to do the various things necessary in treatment in a more rapid manner, and he looked forward to the time when Mr. Colyer, from his experience in the hospital, would be able to bring before them something more definite. He thought the discussion ought not to close without a tribute to Mr. Colyer for bringing forward his paper.

Mr. G. O. WHITTAKER thought one of the causes of open bite had been overlooked, viz., decay of the temporary teeth. Patients got tender temporary teeth and were therefore afraid to bring them closely together. They did not masticate properly, and consequently the first permanent molar rose up in its socket and became much longer. He had noticed on several occasions that when the first permanent molar was taken out the second molars travelled forward, more particularly the upper molar—the lower molar as a rule tilted—and by travelling forward the bite was reduced. Through having

the decayed teeth removed the patients were enabled to bite upon the sound teeth, and consequently the offending teeth were driven down more firmly into their sockets. As an instance of that he mentioned a case which was the opposite to the open bite, namely, a close bite, in which the lower incisors impinged behind the central incisors in the upper jaw. Wishing to raise the bite he capped with gold two of the bicuspid. The patient was 18 years of age, and went abroad to school, and when she came back twelve months afterwards he found the lower bicuspid which he had capped with gold had been driven down into the jaw, and the teeth were not much improved upon what they were before she went away.

Mr. J. F. COLYER, in reply, said he did not base his views upon the drawing he had shown from Mr. Tomes' Dental Surgery. As a matter of fact the view he held with regard to the muscular action was arrived at more from cases which had come under his notice at the hospital, and it was quite by chance, looking through Mr. Tomes' book, that he came upon the drawing which seemed to illustrate the point. He constantly noticed, in cases of open bite, that curious bending down about the region where the masseter muscle was inserted. It was quite a speculative view, but he did not think that Mr. Storer Bennett's remarks had in any way lessened the weight of his (Mr. Colyer's) argument, because it was not at all necessary that the bending should take place immediately in front of the anterior fibres of the masseter muscle. It was simply a matter of the relative power of the force of the muscles, and it must be recollected that there was a tremendous force acting in an upward direction on the ascending ramus.

One curious thing struck him in connection with open bite, namely, the large number of cases seen in hospital practice compared to private practice. In reply to Mr. Curnock he might say he did not adopt the treatment of cutting in the bite until he had tried the extraction of the the first permanent molars and the use of the skull and chin cap; but he had found those methods were seldom quite sufficient. He had had under treatment for something like three years in the hospital a case in which by no manner of means could he get the teeth into correct occlusion. He attributed it to the fact that the patient had got a very short ascending ramus, and if he could put a small piece in that ascending ramus he honestly believed he would get her teeth

together. With regard to Mr. Redman's remarks, there could be little doubt that large tonsils and mouth breathing had something to do with open bite. They must, however take into consideration the very large number of people seen with nasal obstruction that had not got open bite. Nasal obstruction might be part of the cause, but he hardly thought it the sole cause.

The PRESIDENT, in the name of the Society thanked Mr. Colyer for his paper, and the gentlemen who had brought forward casual communications, and in adjourning the Society to January 11, wished the members a happy Christmas and a prosperous New Year.

The Society then adjourned.

THE EDINBURGH DENTAL STUDENTS' SOCIETY.

This Society met on the evening of December 7th, to discuss "That the Medical side of the Dental curriculum be suppressed."

Mr. Finlayson, one of the students, in his opening remarks for the affirmative complained of the wording of the title, his whole contention being that too much time was already devoted to the purely medical side of the curriculum, to the detriment of the students' practical education. He pointed out the interference of the medical classes with the hours of Hospital practice, and especially emphasized the need of a modified physiology course. The negative side was ably led by Mr. J. H. Gibbs, who in admitting the present management of classes interfered somewhat with the practical work of the student, said that he understood next session, the hours of certain medical classes were to be arranged to suit the dental student. Various instances were cited where a medical training was of distinct gain to the dental surgeon, and his patient, Mr. Gibbs contending that as the oculist, and the aurist were specialists in medicine, so should the dentist become a surgeon practising dentistry.

The discussion following was led in the affirmative by Messrs. Boltman, Markham, and Hume Pardie, L.D.S., and in the negative by Mr. Watts and Mr. Sewill Simmonds,

L.D.S., the casting vote of the chairman giving a decision in favour of the affirmative side.

Mr. Robert Lindsay, L.D.S., the president, who occupied the chair, showed an interesting case of pivoting made in Germany. A model was passed round with the extracted roots, and their artificial crowns in position, showing distinct perforations in the sides of two of the root canals, which had led to extensive inflammation and absorption.

On the Friday following, the Annual Smoking Concert was held in the Windsor Hotel, Princes Street, when Mr. W. Ivison Macadam, F.R.S.E., the honorary president of the Society, occupied the chair. The programme, which was arranged by Mr. J. Coltman, was of an excellent character, and had more variety than is usually met with in this class of entertainment.

The appearance of Mr. T. Dilks-Page, L.D.S., as a conjurer is now a bi-annual fixture, and his coming specially from South Shields to give his clever performance was highly appreciated. Of the students Mr. Billy Markham again proved himself an inexhaustible humorist, and he was ably assisted in his efforts to entertain by Messrs. Bell, Gardener, Edwards, Murray, Sutcliffe, Baxter, and Mr. Bellman. Mr. Andrew Wilson, L.D.S., the lecturer on Dental Anatomy, proposed a vote of thanks to the entertainers, which was enthusiastically received, and Mr. Lindsay, in a few words, spoke to the harmony of the evening, and the excellence of the chairman.

Dental News.

ACTION AGAINST THE GENERAL MEDICAL COUNCIL.

An action has been commenced in the High Court against the Registrar and Executive Committee of the General Council of Medical Education by seventy dentists, whom the Medical Council have refused to register on the ground that they have not passed the examination under the Dentists' Act of 1887. The plaintiffs contend that they are exempted under Section 37. Mr. Bertram Jacobs, for the plaintiffs, has retained Mr. Biggam, Q.C., and Mr. T. Willes Chitty.

Daily Mail.

DENTAL COLLEGE OF THE PROVINCE OF QUEBEC.

In an issue of November 16th, a letter appeared from Dr. Beers, Dean of the Dental College of the Province of Quebec, Canada, resigning his position, on account of several members of the College staff, signing a petition to the Local Legislature to allow dentists to engage unlicensed assistants, and give them some of the privileges of licentiates. The result was very satisfactory. The members of the staff, together with over thirty of the forty dentists who signed, at once published in the practical press, a statement that misrepresentations had been made to them to induce them to sign, and that they opposed the petition and demanded the cancellation of their names. Dr. Beers then withdrew his resignation.

BLACKHEATH DENTIST'S CLAIM.

Frederick Arthur Ballard, a dentist, of Shooters'-hill-road, Blackheath, sued Mr. Alfred Wainman, of Craigerne-road, Blackheath, for £10 15s.

Plaintiff said he extracted a number of teeth—19—for Mrs. Wainman, and replaced them with false ones, undertaking to supply two sets for 20 guineas, £20 of which had been paid on account. The teeth were extracted in January, and in May Mrs. Wainman complained that the false teeth were too large, and wanted smaller ones. Alterations were made, and she said she would have a set for the lower jaw, which were supplied. His claim included charges for stopping teeth, some bottles of mouth wash, &c.

The defence was that plaintiff originally undertook to supply two complete sets of teeth for both jaws for £21, and those supplied for the upper jaw never suited, Mrs. Wainman being constantly to and from the plaintiff's to have repairs made.

The jury before whom the case was heard gave a verdict for the plaintiff for the full amount claimed. £1 15s. 6d. had been paid into court.

Kentish Mercury.

APPOINTMENT.

Mr. G. H. Bowden, L.D.S., R.C.S.Eng., and F.P.S.Glas., has been appointed as Dental Surgeon to the Reigate Grammar School.

SIGNS OF OLD AGE.—Dr. Kortright, in the *Brooklyn Medical Journal*, says that arterial sclerosis is a common cause of death of physicians. The lesson we should learn from our deceased colleagues, he states, is not to work too long. When you find your arterial tension increasing, your temporal artery becoming tortuous, your radial growing hard, especially if you have a little palpitation and pass an increased amount of limpid urine, whatever your years, know that old age is upon you. Henceforth shape your life like one that is old. Curb your ambition. Be content with a small practice. Reduce your expenses. Give up your night work. Decline confinements. Take a long vacation in summer. Retire early. Eat abstemiously. Drink not at all. Sell your horse. Take a great deal of moderate exercise in the open air. Watch the functions of the skin. Guard against a chill. Cultivate an even disposition. Study to be quiet.

Maryland Med. Journal.

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

To the Editor of the "British Journal of Dental Science."

HOSPITAL ABUSES.

Dear Sir,—It is with feelings of the profoundest satisfaction I note the letter by L.D.S., and your Editorial remarks *re* Hospital Abuses. I, however, fear the magnitude of the abuses in question are not known to you, still I, as one of the profession, thank you for your remarks, and still more for your sympathy. Since drawing your attention to this grievance, a case of a most glaring nature has come under my notice in

my own practice. I do hope this subject will not be shelved, as a remedy can be found. If the Hospital authorities are properly and thoroughly convinced this abuse is spreading, I feel sure they will help us to put it down.

I wish here to suggest what I think would prove a remedy for the existing evils under which we as dentists are suffering. What we want is a Dental Club, open and well supported by all members of the profession carrying on their practices in a professional spirit, and having besides the advantages of social intercourse and the facilities of an ordinary club, the following special objects:—

Firstly. Instances of malpractice injurious to the interests of the profession could be from time to time reported to the honorary Committee, who could consider the same, and, if thought desirable, they could report the matter to the proper authorities, viz., The Medical Council, Deans of Hospitals, British Dental Association, etc.

Secondly. A Black List could be kept for future experience of all registered men and assistants accepting situations with the "Guinea set" advertising fraternity, etc.

Thirdly. Profits derived from the Club could be usefully employed in instituting, or in aiding other Societies, such as the British Dental Association, in instituting prosecutions against unregistered men, to restrict them from practising as dentists, and also to prevent covering by registered men.

Surely it is time to give up complaining and to act.

I shall feel greatly obliged if you will kindly receive the names of any gentlemen willing to join me in the formation of this said club.

Trusting you will let the importance of this subject plead my excuse for thus encroaching on your valuable space,

I am,

Yours very truly,

REGISTERED DENTIST.

To the Editor of the "British Journal of Dental Science."

In the Journal of December 1st, page 1087, Mr. George Foy mentions Long's ether, Well's N₂O gas, and Morton's ether, which latter should read Jackson's ether, as Jackson gave the prescription to Morton, who falsely presented it at the Mass. General Hospital as his own discovery, though afterwards he acknowledged it to be Jackson's.

In the face of recorded and living testimony, why should the original lie be taken as historical fact?

JACOB L. WILLIAMS, M.D.

4, Walnut Street,

Boston, Mass., U.S.A.

December 14, 1896.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester,
during the month of DECEMBER, 1896.

Number of Patients attended	703
Number of Extractions	434
Number of Extractions under Anæsthetics	136
Gold Stoppings	61
Other Stoppings	163
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	141
Gold and Porcelain Crowns	15
Inlays	
Total	950

J. STEPHENSON, *House Dental Surgeon.*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

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British Journal of Dental Science.

No. 697.

LONDON, FEB. 1, 1897.

VOL. XL.

ORAL SURGERY.

By EDMUND W. ROUGHTON, B.S., M.D. (Lond.), F.R.C.S.
Eng.

(Continued from page 63.)

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DEFORMITIES OF THE MOUTH.

As the mode of origin of hare-lip, cleft palate and macrostoma is unintelligible without some knowledge of the method of development of the parts concerned, it will be well to recall to mind the chief features in the process.

The prominent part of the nose and the front part of the nasal septum are developed from the fronto-nasal process (Fig. 57,) descending from the base of the skull between the rudimentary eyes. This bifurcates below into two mesial nasal processes. They coalesce in the middle line to form the intermaxillary bone with the incisor teeth, the central part of the upper lip and the columna nasi. Outside them on each side is a depression which forms the nasal orifices and outside these again are the lateral nasal processes which form the alæ nasi. The remainder of the face above the mouth is formed by the superior maxillary plates which grow forwards and inwards to coalesce with the nasal processes. The lower jaw and the soft parts covering it are formed in like manner by two inferior maxillary

plates advancing from each side and coalescing in the middle line. The superior and inferior maxillary processes of each side coalesce to a great extent but not completely, the gap left forming the mouth.

The mode of origin of the various deformities under consideration will now be readily understood. If one superior maxillary process fails to unite with the fronto-nasal process, a fissure will be left through the upper lip to one side of the

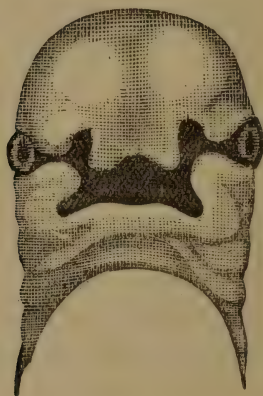


Fig. 57. —Development of Mouth and adjacent parts (His.)

middle line forming a single hare-lip (Fig. 58 and 59). If both superior maxillary plates fail to unite with the fronto-nasal process a double hare-lip (Figs. 60 and 61) results, the intermaxillary bone being often left adherent to the tip of the nose and the nasal septum. A large median hare-lip is the result of arrest of development of the fronto-nasal process (Fig. 61). A small and incomplete median cleft may result from the failure of the two median nasal process to unite. When the palatal processes of the superior maxillary plates fail to unite, the result is a cleft palate. This condition may exist alone or in combination with any varieties of hare-lip.

Macrostoma, or congenital tranverse fissure of the face, is due to arrested coalescence of the superior and inferior maxillary plates.

HARE-LIP.

The different varieties of hare-lip have already been sufficiently indicated in a preceding paragraph.



Fig. 58.—Partial Single Hare-lip, showing line for operation.

The fissure may be little more than a mere notch in the edge of the lip (Fig. 58). More often, however, it extends more deeply into the substance of the lip, or even completely into the nostril (Fig. 59). The deformity is much more often



Fig. 59.—Single Hare-lip, extending into nostril.

single than double, and occurs on the left side more often than the right. The two margins of the cleft are usually unequal in length, and the mesial is often rounded, the outer somewhat flattened.

In double hare-lip the central portion is often shorter than the lateral portions of the lip, and projects further forwards; the incisors are then much in advance of the other teeth, owing to elongation of the intermaxillary process.

Treatment. The deformity must be remedied by a plastic operation. The best age for operation is between three and five months. Very young children stand hæmorrhage badly.

Dentition begins soon after five months, and may seriously interfere with the success of the operation. It is important that the child should be in as good a state of health as possible. The surgeon aims at obtaining primary union, thereby closing up the gap with the smallest amount of scarring. The neces-



Fig. 60.—Partial double Hare-lip.

sary incisions should be made with a very sharp knife to avoid bruising the tissues ; the edges of the cleft should be sufficiently freely pared to leave broad raw surfaces, which should be concave towards the middle line of the cleft, so as to lengthen the line of union ; the lip should be freed from

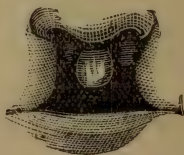


Fig. 61.—Double Hare-lip. Inter-maxillary bone imperfectly developed.

the gum at the apex of the cleft, so as to avoid tension ; and great care should be taken to ensure accurate adaptation of the raw surfaces, especially at the free margin of the lip.

The details of the operation vary considerably, according as the cleft is single or double, or complicated by protrusion of the intermaxillary process.

Operation for Single Hare-lip.—The lip having been compressed on either side of the cleft by a suitable clamp (such as Smith's) to control hæmorrhage, the surgeon first

frees the lip from the gum at the angle of the cleft ; he then pares the edges with a sharp fine scalpel, taking care to remove the whole of the rounded portion of the prolábium on each side of the base of the cleft. The raw surfaces are then brought into accurate apposition by means of two hare-lip pins. The lower pin should be passed first, and should be made to transfix the coronary artery, care being taken that the pin does not penetrate the mucous membrane, and double

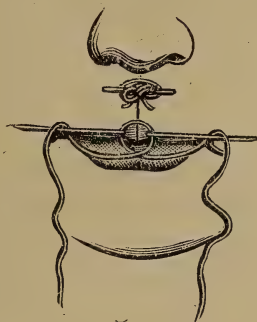


Fig. 62.—Operation for Hare-lip.

in a fold of it between the pared edges ; being satisfied that the first pin brings the margin of the prolábium accurately into line, the upper one is passed in the same way and a silk suture twisted round each. The ends of the pins are then cut off with pliers, and a small pad of gauze placed under each to prevent injury to the cheek ; several horse-hair sutures are then inserted to complete the apposition. The parts are then dried and covered with collodion, and a piece of strapping applied from cheek to cheek to support the lip and prevent traction when the child cries. In cases in which the cleft is not very wide or deep, silk-worm gut sutures may be used instead of hare-lip pins ; when the latter are used they should be removed after twenty-four to thirty-six hours ; if left longer they will produce scars. The twisted silk suture is not dis-

turbed by removing the pins, and should be left adhering to the lip until firm union has taken place.

When the fissure does not extend through the whole lip Nelaton's operation may be performed. This consists in making an inverted V-shaped incision with its angle just above the apex of the cleft, each arm stopping short of the prolabium. The tissues below the incision are then drawn down, leaving a diamond-shaped wound ; on bringing the raw surfaces together by passing a suture or hare-lip pin horizontally, a projection on the border of the lip will be produced in place of the original cleft ; this disappears in time leaving the margin straight.

Operation for double Hare-lip.—This is conducted on the same principle as that for single hare-lip. When the premaxillary process projects, it should not be removed unless it is very small and too much out of place to be made use of ; it is better, if possible, to force it back into place by partially dividing its base of attachment, or by removing a wedge-shaped piece from the septum of the nose. The central piece of lip should be completely pared ; two flaps are then cut from the lateral portions, and brought down and united to each other below the central part ; the latter is sutured to the two united lateral pieces.

CLEFT PALATE.

Cleft Palate results from failure of the palatal processes of the superior maxillary plates to unite with each other in the middle line and with the premaxillary bone in front. The cleft may be complete, extending through the middle of the uvula, soft palate and hard palate, and through the alveolar process at the line of suture on one or both sides of the premaxillary bone, or it may involve the uvula alone, or the whole length of the soft palate, or a portion of the hard palate as well. The lower border of the vomer may be free in the cleft or attached to either margin.

The malformation interferes very much with the functions of the mouth. On swallowing fluids regurgitation takes place through the nose. Infants with cleft palate are unable to suck, and consequently die unless carefully fed by hand. Speech is nasal and indistinct, and taste and smell may also be impaired.

Treatment. The infant must be fed by means of a feeding bottle with a teat large enough to act as a plug to the cleft, or by a spoon passed well to the back of the mouth. The mother's milk should be used, if possible. The operation should be performed before the child begins to speak, but not in early infancy, as the cleft often diminishes in width during the first two or three years of life. Moreover, infants bear hæmorrhage badly, and are very apt to catch cold and to disturb the parts by coughing and sneezing. Three years is the most suitable age for the operation. The cleft in the hard and soft palate should be dealt with at the same time.

Staphylorrhaphy or closure of the soft palate. Chloroform having been administered, the mouth is widely opened and the tongue depressed by a Smith's gag. The edges of the cleft are then pared from below upwards. The two halves

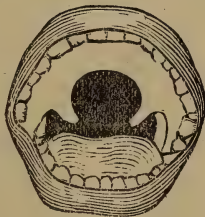


Fig. 63.—Cleft of soft and part of hard palate.

of the uvula and the lower part of the soft palate are united by horsehair sutures and the upper part by silver wire. The latter is passed by means of Smith's needle, which has a small reel attached behind the handle to hold the wire, and a

serrated wheel half way up the handle to protrude the wire from its tubular point. The parts having been brought into

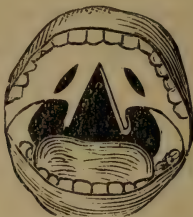


Fig. 64.—The edges pared and the lateral incision made.

accurate apposition, the tension is relieved by making incisions through each side of the soft palate parallel to the cleft and just internal to the hamular process. These incisions secure rest for the opposed surfaces by dividing the palatal muscles.



Fig. 65.—The edges united by sutures.

Uranoplasty, or closure of the hard palate. The edges of the cleft having been pared an incision about half an inch long should be made through the muco-periosteum of the palate on each side of and parallel to the cleft, taking care to avoid the palatine artery. A raspatory is inserted into one of these incisions and the muco-periosteum separated from the bone along the whole length of the cleft. The muco-periosteum is then detached from the posterior margin of the hard palate with curved scissors, one blade being passed through the cleft and the other behind the soft palate whilst the latter

is drawn forward. The same process is then repeated on the opposite side. Silver wire sutures are then introduced and the raw edges of the cleft brought into apposition. Tension is relieved by prolonging the cuts forwards or backwards as may be necessary. Hæmorrhage is arrested during the operation by sponge pressure, care being taken to let the blood flow out of the mouth from time to time by turning the head over to one side, and to see that none of it enters and occludes the larynx.

In the after treatment every care must be taken to keep the palate at rest. The patient should be fed for the first few days on iced milk, and on soft food for another fortnight. He should swallow with as little effort as possible, and speaking should be strictly forbidden until union is complete. The stitches may be left in for three weeks or a month, but should be removed sooner if they produce irritation. The surgeon hopes that the whole cleft will unite by first intention; but not unfrequently a portion of it may fail to unite at once, but may to a large extent close by granulation. When a small circular aperture remains it may often be got to heal by stimulating its margin with nitrate of silver or the actual cautery. If a large gap remains a second operation must be performed.

Speech is sometimes perfectly restored, but this happy result is unfortunately the exception. The voice usually remains more or less nasal or "Punch-like." This is due to two causes; firstly to faulty habit of articulation, and secondly to the fact that the repaired soft palate is too short in its antero-posterior measurement to completely shut off the nasopharynx. The first cause may be to a large extent corrected by careful instruction in elocution, but the second is of necessity irremediable.

MACROSTOMA.

Macrostoma, or congenital transverse fissure of the face, results from arrested coalescence of the superior and inferior maxillary processes. The cleft extends from the angle of the mouth to the anterior border of the masseter, or even up to the external auditory meatus. In such cases the external ear on the affected side is malformed, the tragus being detached from the auricle, forming a small lobulated excrescence on the cheek ; the helix is often twisted and curled inwards.

This deformity is treated on the same general principles as hare-lip, the edges being pared and united by hare-lip pins and twisted sutures.

ATRESIA ORIS.

This condition may result from excessive coalescence of the superior and inferior maxillary processes, or may be the result of sloughing of the lips. The treatment consists in the performance of a plastic operation.

(To be continued.)

ARTIFICIAL DENTURES.

By HARRY ROSE, L.D.S.Eng.

To estimate artificial teeth at their full value, one must consider firstly, the nature of the requirements expected from them, and secondly, whether they fulfil those requirements in a fairly satisfactory manner.

The object in wearing artificial substitutes for the lost natural teeth is, of course, to improve the power of mastication, to give clearness and distinctness to the speech, and to restore to the features the particular character of expression existing before the removal or decay of those essential though oftentimes troublesome occupants of the dental arches.

That these conditions are fulfilled in a very efficient manner in a great number of cases, no one, I think, will attempt to deny; in fact, it is only those who have lost their own natural teeth who can adequately realise the benefits to be derived from a good fitting and well made set of artificial teeth. The wearer in a few days, or at farthest in a week or two, should be able to articulate more distinctly, to masticate his food in a thoroughly efficient manner, and find that his great enemy indigestion is becoming a thing of the past.

Having arrived at this stage, if the artist has shown the necessary care and skill in construction, the patient ought to forget their presence in the mouth, and scarcely to be aware that they are other than his own natural organs.

Artificial teeth can be made so comfortable that not infrequently the possessor is unaware of their absence from the mouth until he begins to eat, and the exclamation at the breakfast table, "Dear me! I have forgotten to put in my teeth this morning," is not by any means an uncommon occurrence.

I have spoken of work being properly constructed, and would state that a marked difference exists between an artistic denture and the clumsy masses of vulcanite too often offered to the public under the name of artificial teeth.

An artistic case should really be a reproduction of the roof of the mouth and the natural teeth, that is to say, the vulcanite or plate should represent a setting for the teeth and should conform to, and copy, the surface of the gum on its lingual as well as palatine aspect.

The rugæ should be accurately represented, and the case should not present a smooth and unbroken continuity of surface which certainly does not conform to, nor represent the roof of the mouth.

It is this latter which sometimes makes the wearer declare that his food seems to slip down his throat before he has had

time to masticate it properly, and it is the thickness of the case which gets in the way of the tongue, fills up the mouth and renders articulation so difficult and indistinct.

The tongue is seeking for contact with its lost bearings, and instead of finding them discovers a smooth and unbroken surface.

Another thing I would mention is as to the shaping of the backs of teeth to represent the natural ones, and again these are found to be separated at their necks by an interval clear and distinct in shape.

By attempting a close approach to Nature in our efforts at dental reparation one ought to be rewarded by the patient more quickly tolerating the presence of the case in the mouth and appreciating the result of the dentist's labour, not as mere mechanical work, but as the outcome of a science.

FITTING TEETH IN THE MOUTH.

No part of our work requires so much patience, tact, and judgment as the subject under discussion, viz., adjusting cases to the mouth.

One must be able to grasp and overcome every little trouble and difficulty likely to arise, and to do this successfully it is necessary to understand and appreciate the various sensations that a patient is likely to be subjected to when artificial teeth are placed in the mouth for the first time.

The first and foremost is the feeling of having too much in the mouth, and that there is no room for the tongue; this is the primary complaint one can persuade a patient to bear with, if another objection does not crop up, that is, the size of the plate creating nausea. It is then that one requires all the discretion and judgment possible in order to abstain from reducing the case, or if reducing it that one does not impair its stability by suction.

One may have to call into aid all one's persuasive power to

get the patient to wear the case if only for a single night that the tongue may get used to the foreign body in the mouth.

I say one night for this reason, that while the patient is asleep, the tongue accommodates itself readily to its more limited space than by wearing the work a week in the day time only ; and when the case is reduced somewhat in size, if necessary, after once wearing it the tongue and palate at once recognise the alteration however slight that has been made, and the patient finds immediate relief.

The next troubles may be enumerated as having reference to the stability of the cases in the mouth, learning to masticate with them, and another item I must not omit, viz., the general depression of the patient at not being able to accomplish all these essentials at once.

Now as regards the stability or holding power of the work in the mouth. I must conclude that the student understands his work and has taken the precautions enumerated to obtain the best results ; if he has done so he should feel quite satisfied in his own mind that he has made the case properly, and should then be able to assure the patient, that perseverance in wearing it is alone necessary to ensure success.

Let us surmise that the case has been worn for a few days, and the patient returns to give his report.

He begins by stating that he cannot eat with them, and that they make the mouth very sore. It is astonishing what a trouble one patient will make of a small sore in the mouth, while another whose mouth bears evidence of still greater pressure will scarcely mind it in the least.

It is now clear that one must take a little from the case where it unduly presses, and should at the same time touch the ulcerated spots with silver nitrate which cauterises and leaves a deadened surface protecting the parts below or above, and allows them to heal readily.

This soreness of the mouth is not a bad sign, and should

rather be welcomed by the dentist as evidence that the case has been worn and to some extent used, and at the same time the patient should be made to understand that one cannot expect any great amount of masticating power until the mouth has educated itself to wearing the work, and the teeth are able to close forcibly without causing pain.

I would here mention that directions should be given to the patient to wear the case until the mouth is sore and then present himself. One can then examine the mouth and relieve the case accurately, and at the same time the trouble will have been anticipated and his mind relieved, for it is only natural when the mouth becomes more and more tender, and difficulties seem to increase rather than diminish, that the patient should imagine that the case is not well made, and things are going wrong.

Any little soreness of the mucous tissues soon heals up again when the undue pressure is removed, and one may have a patient down in the dumps, so to speak, one visit, and on the next occasion expressing himself as being absolutely comfortable.

It should be made a golden rule on the insertion of teeth, to inform the patient of the various difficulties he is liable to encounter, and must overcome, before growing accustomed to the case, and that it is expected he will visit you until he is quite comfortable. Nothing distresses me more, and it is doubtless the same with any conscientious dentist, than a patient returning after a few months saying he is not wearing the work and has never been able to.

Now as the gums get more used to the pressure of the work, and if the patient has been intelligent enough by cutting up the food, especially meat, pretty small, to give so much help to the set, mastication becomes more and more perfect, and ultimately he finds himself in possession of a dental armature that he can do anything in reason with.

Before closing this part of the subject I would draw the attention of the young practitioner to the fact that his patients are not all constituted alike, some can tolerate anything in the mouth, while others are rendered miserable by a trifle, or what we regard as such. One must humour some, encourage others, and above all please oneself, and feel assured that the work is well done and is in every respect suitable, for the patient's welfare ; if anything has been omitted in its construction, it is always better to recognize it at once, and remake the case, if necessary, instead of allowing the patient to have all the annoyance ultimately to find out that the alteration has to be effected after all.

(*To be continued.*)

A NEW TOOTH AT 50.

An enthusiastic Christian Scientist informed me once, says Dr. Wolf in *The Hypnotic Magazine*, that, though over fifty years of age, he had grown a new tooth in a vacant space. in his gum, merely by the force of his strenuous desire that the molar should appear. He even pointed out the particular tooth, smaller than the rest, as if shrinking from the older and more experienced "set" to whom it had been introduced. His word is beyond suspicion, and he firmly believed in the truth of his assertion. A more reasonable explanation of the result, however, is that teeth do frequently grow at irregular periods of men's lives, and that a slight swelling or uneasiness of the particular point of the gum from which this tooth was destined to spring in a little while conjured up the thought that a new tooth would be a desirable thing to have. Thus, the suggestion followed the tooth, and not the tooth the suggestion.

British Journal of Dental Science.

LONDON, FEB. 1, 1897.

ACTION AGAINST THE GENERAL MEDICAL COUNCIL.

In our last number we drew attention to the fact that a body of unregistered men were bringing an action in the High Court against the Registrar and Executive Committee of the General Council of Medical Education with the object of having their names placed upon the Dentists' Register. They contend that their case comes under section 37 of the Dentists' Act. This section provides that any person who has been articled as a pupil, and has paid a premium to a dental practitioner entitled to be registered under the Act, in consideration of receiving from such practitioner a complete dental education, shall if his articles expire before January 1st, 1880, be entitled to be registered under this Act as though he had been in bona fide practice before the passing of the Act. The section goes on to say that the General Council may by special order dispense with certificates, examinations, or other conditions for registration as to them may seem fit, in favour of any dental students or apprentices who have commenced their professional education or apprenticeship before the passing of this Act.

This became law in 1878, and in the years which followed the Council exercised their powers of dispensation on many occasions—too many some are inclined to think—in favour of those apprentices who, in their opinion, had a claim to be placed upon the Register. In 1891, owing to representations made by the British Dental Association, the Council thought fit to decide that it would no longer register any

more such pupils unless they could in every respect fulfil the requirements of the first part of section 37. We certainly think that thirteen years is a liberal margin to allow, and we cannot conceive that any pupils can have been so careless and thoughtless as to have allowed their chance of registration to slip by unheeded for so long a period. However that may be, the fact remains that some forty persons claim to have the privilege of obtaining registration under the clause of dispensation which we have quoted, and petitioned the Council last year—eighteen years after the Act was passed—to exercise its dispensing power in their favour. The Council carefully considered the application and found no reason to make special exemption in these cases. The applicants, being of opinion that the Council has acted *ultra vires*, are now appealing from their decision to the High Court.

In commenting at the time upon a consequent decision of the Council concerning "covering," we said, "It is indeed a matter of importance, and is another link in the chain which so far from shackling the honourable practitioner should rather be considered as a secure cable destined to anchor him in the haven of public esteem and of recognition by his medical colleagues. Not long ago, the General Medical Council recognised the incongruity of any longer allowing a back door to the Dentists' Register to remain open, whilst the legitimate entrance was free to all on the production of a diploma, the ordinarily accepted proof of fitness. Admission under clause 37 of the Dentists' Act was thereupon suspended. The present step (the warning against "covering") is a logical sequence and a necessary corollary to the last." As the case is now *sub judice*, any remarks of ours would be out of place as to whether the applicants are justified in striving to get in by the back door or the front door, but we earnestly hope that the evidence in the case will be sifted in the most minute manner, and that before any attempt is made to alter the decision of the Council, incontrovertible proofs of the bona fides of each particular candidate—especially as to his having received "a complete dental

education"—be exacted. We desire that nothing but strict justice be done to the candidates, but we must also insist upon the importance of justice being shown towards those who are already on the Register. The decision of the High Court will be awaited with the keenest interest.

ADVICE GRATIS!—The *Chemist and Druggist*, in the answers to Legal Queries advises a correspondent as follows: "We do not ourselves think it an infringement of the Dentists' Act, for an unregistered person to describe his place as the "Whitechapel Dental Institute." But unfortunately magistrates have not so far taken our view. We should not recommend unregistered persons at present to do more than announce that they extract teeth carefully or supply and fit artificial ones." We think it will be a long time before magistrates do take the *Chemist and Druggist's* view. The reply seems to throw a light upon the practice we may expect from these gentry; "pull them out and put them in!"

IS PYORRHOEA ALVEOLARIS ASSOCIATED WITH CONSUMPTION?—Dr. S. W. Foster, of Atlanta, maintains that "It is rare that we see a consumptive in whom we do not find a typical case of pyorrhœa, or, at least, pus discharging from around the necks of the teeth, and it seems that the breathing into the lungs the effluvia from those suppurating sinuses of the mouth might produce this fatal disease." We have had considerable experience in the mouths of consumptive patients, and we can confidently assert that Dr. Foster's statement of the frequency of pyorrhœa and consumption is not correct. Pyorrhœa of course is found, like any other disease may be found in a consumptive patient, but that it is the rule or that it produces the disease we deny. The gums of consumptive patients are frequently very much wasted, sordes collect very largely, teeth are frequently very loose

and abscesses readily form, but, according to our experience, the presence of typical pyorrhœa is not a very frequent occurrence.

BLOOD POISONING AFTER TOOTH EXTRACTION.—Dr. Port, of Munich, remarks that “when we consider the large quantity of micro-organisms which flourish in the mouth, it is extraordinary that dental extractions are not more frequently a source of infection.” Dr. Miller’s book only cites sixty cases of which about half the number terminated fatally, whilst the other half recovered sooner or later. Death generally occurred from septicæmia, pyæmia or meningitis. He gives a recent case of a young and vigorous man whose lower molar was extracted by means of the key. He developed fever and died in four days. The autopsy revealed a large abscess in the neck, the pleural cavities held a large quantity of fœtid brown pus, whilst the pericardium also contained pus. The abscess disclosed streptococci and diplococci, and the latter resembled the salivary septicæmic microbe described by Miller.

THE FIRST RUSSIAN DENTAL CONGRESS.—The first congress of Russian surgeon dentists was held at Nijni-Novgorod last July. More than eighty members were expected, but only fifty-four were present. The second congress will be held at St. Petersburg in 1899. We are glad to see that Russia is following in the lead of Progress and wish its organisation all success.

SWALLOWING ARTIFICIAL TEETH.—Another case reaches us from Liverpool. A man was admitted to the Royal Infirmary in consequence of having swallowed his artificial teeth. He received every care and attention in the Infirmary, and an operation was performed with the object of extracting the teeth. He, however, died, notwithstanding the utmost medical care. These cases usually arise from the patient

wearing a very small plate, the teeth to which it is attached becoming decayed, and the plate consequently becoming loose. The wearers of all such small cases should be warned of the risks they run in the event of the plate becoming loose from any cause, and they should be advised to remove them always at night.

CHEAP DENTISTRY.—Mr. Treves a short time ago said he did not believe in cheap dentistry. What would he think of the following taken from a speech of Dr. Chilson on the subject at a dental meeting in the United States? "At the Boston parlours—Sets of pearly teeth made by the best workmen for 2 dollars and guaranteed for ten years. Teeth extracted in the morning and new ones put in at night; beware of cheap advertising dentists."

HOW IT IS DONE.—President Southwell at the same meeting told the members how the oracle was worked. "I know a case of a dentist who advertised a crown for 2 dollars. The patient goes there expecting the work all done and the crown put on. She pays her 2 dollars, and the dentist says, 'Hold on, that crown is 10 dollars.' 'Why, you advertised crowns for 2 dollars.' 'Oh yes, I advertised crowns for 2 dollars, but you must pay for the work. The work is 8 dollars, and the crown is 2 dollars.'

"Another case where a dentist advertised, 'Sets of teeth 5 dollars.' The patient goes there to get a set of teeth and wants to know how much the set costs. The dentist says '15 dollars.' 'Why, you advertised teeth for 5 dollars.' 'Why yes, I can give you a set of teeth, but you can't use them without a plate.' 'Do you charge for the plate?' 'Yes.' 'How much do you charge for the plate?' '5 dollars for the plate.' 'And do you charge for your work?' 'Certainly, 5 dollars.' That is the way it goes. This advertisement is just to get them into the office, and that is all they want."

Abstracts of British & Foreign Journals.

A MISTAKE.

A case of an unusual kind came under the notice of the writer recently.

Miss F——, about twenty-one years of age, presented her teeth for inspection. The teeth were in good condition and the mouth healthy ; a few small cavities had been filled ; the teeth were free from irregularity. The mouth being opened, it was at once noticeable that the left superior cuspid was absent, and a space sufficient for its accommodation remained between the lateral incisor and first bicuspid.

The absence of the tooth caused a very pronounced depression of the surface of the part in which the tooth had stood, and not only this, but the lip and face covering this part was quite depressed, so much so as to mar the symmetry of the face, especially to a close observer. Now for the history :

At the age of about fifteen this tooth was not fully grown, having been a little tardy in its eruption. The young lady, at about the time above indicated, having her teeth examined, called the attention of her dentist to this tooth, when he promptly replied : " Oh, that is a temporary tooth and must be removed to give place to the permanent one." The patient remarked that she " supposed she had shed all her temporary teeth." To which the dentist replied : " No, it is a temporary tooth and must be removed ; you go to Dr. —, take gas, and have it extracted." And at once she obeyed, but to her life-long regret.

Now, what shall be said about this case ? Well, the dentist is not a quack ; he is not ignorant ; has had good educational advantages for his profession ; he has a good practice, that ought to satisfy any one. Now, why this blunder ? Simply inexcusable carelessness, that will probably be remembered against him through life, and should bring upon him the sharpest censure. This case emphasizes the importance of the utmost care in all examinations of the teeth.

Of the extractor who removed this tooth we know nothing, except what is revealed by this operation. He seems to have been little, if anything, more than a machine, ready to obey any request regardless of consequences, even to the removal

of a sound, healthy, cuspid tooth, which will impair the symmetry of a beautiful oval of teeth for life.

If so gross a mistake occurs in so simple a case as this, what may not happen in the more complicated and abstruse cases?

Dental Register.

RECOVERY FROM CHLOROFORM SYNCOPE.

Mr. Charles E. Solomon, of Liverpool writes to the *British Medical Journal* :—

“ On October 31st, at 2.30 p.m., I was asked to administer chloroform to a gentleman about 20 years of age for the purpose of tooth extraction. Four days previously I had carefully examined him and pronounced him in a normal condition and quite able to undergo the operation with that anæsthetic. At the time appointed, the patient being in a recumbent position in the chair, I proceeded to give the chloroform on folded lint (my usual custom), and after rather more than $2\frac{1}{2}$ drachms were given he appeared to breathe spasmodically twice, when his whole aspect changed to one of deathly leaden pallor, with profound dilatation and fixity of the pupils, with now but the feeblest attempt at respiration, which was jerky. Added to this there was an almost simultaneous arrest of the pulse. With not a moment's delay the chloroform was stopped, he was lifted to the floor, artificial respiration was at once had recourse to, together with the subcutaneous injection of ether, *mxxx*. In four minutes his breathing had improved and his pulse was perceptible, whilst a little later his facial aspect had undergone a favourable change. With a disposition to relapse, however, artificial respiration was persevered with whilst still in the same posture. Another injection of ether was got ready, but I did not consider it necessary to give it, as in a few minutes there was marked improvement in the circulation and in the condition of the pupils, together with a return of consciousness. Brandy was now given alone, and subsequently in hot water, though I decided not to move him for another ten or fifteen minutes, when he was lifted to the chair, and subsequently assisted across the road to his house.

The points of interest in this case are first that for the most part this was one of cardiac failure, that it was due to the

chloroform, and that the recovery was due to the prompt and unceasing efforts used for the restoration of the circulation.

My best thanks are due to Mr. Bryan, the dental surgeon in attendance, without whose valued assistance throughout my proceedings might have terminated unsuccessfully."

ANCIENT AND MODERN DENTISTRY.

The utility and importance of the teeth have been known since the advent of man on this planet. From reference to the Bible we must assume that they were regarded with due consideration. While no specific date can be obtained as to the origin of dentistry, we know it was practised among the Egyptians at a very early age. Herodotus (500 B.C.), in writing of his travels through Egypt, at that time one of the most civilized countries in the world, mentions the division of medicine in that kingdom into special branches, and the existence of physicians, each of whom "applies himself to one disease only and no more. Some (physicians) are for the eyes, others for the head, others for the teeth, and others for internal disorders." It is thought that the Egyptians and Etruscans were further advanced in the art of dentistry than any other people at that early period, for teeth filled with gold have been found in the mouths of mummies, indicating their advanced ideas.

These people were the first to supply artificial substitutes in the mouth. Belzoni and others have found artificial teeth made of sycamore wood in ancient sarcophagi. The mode of fastening was by ligatures or bands of cord or gold wire, tying the substitute to its natural neighbours. In 1885 some specimens of prehistoric dentistry were exhibited by an English dentist at Liverpool and in America. One was a gold plate with several human teeth attached. The specimens were found in an Etruscan tomb. The plate was ingeniously made, and it caused much surprise to find gold used for a base by such an ancient people.

Ancient Greece is renowned as the "nursery of modern medicine." Hippocrates made a special study of the teeth. Aristotle (300 B.C.) also wrote extensively about them. Several Greek dental operators are mentioned as early as 300 B.C.

These historic facts are mentioned that we may see that due importance was paid to the preservation of the teeth and the reconstruction of them, even in that remote period. During the mediæval period progress was made by men who gave special study to the teeth. During the seventh century many medical men in France and England published works on dentistry, but treated the subject anatomically and physiologically, rather than practically. No record can be found of any one in America practising this specialty until the year 1766, although the population at that time was over two millions.

Sydney Mail.

DEATH UNDER ANÆSTHETICS.—CHLOROFORM.

Mr. A. M. Watts, House-Surgeon at the Hereford General Infirmary, gives an account of a death under chloroform which occurred at that Hospital on December 7th.

The patient was a girl, aged 12, who was admitted to the hospital on November 3rd with obscure symptoms. As her abdomen was very tender and rigid, it was found necessary to put her under chloroform on two occasions for the purpose of examination. An abscess in the left psoas muscle having been diagnosed it was opened on November 13th, this time the patient being under ether. She took the anæsthetic well on each occasion. The child had a scar on the right upper eyelid, the result of a burn, which prevented her closing the lids, and it was decided on December 7th, the patient being in better health, with little discharge from the abscess and a normal temperature, to divide the scar and graft a piece of skin. Chloroform was administered on a fold of lint, as on the two previous occasions, and the child was never deeply under its influence; but after about ten minutes, and when the operation was practically finished, her pulse was felt to stop, she then took a few slow, sighing respirations, and ceased to breath. The head was at once lowered, artificial respiration begun and continued for an hour, the trachea was also opened, and brandy, ether, and strychnine injected hypodermically without any result. A couple of minutes before the pulse stopped the patient vomited a little mucus,

and just before the conjunctival reflex was present, showing that she was coming to. Not more than 3v of Duncan and Flockhart's chloroform was used. The *post mortem* examination showed that all the organs were healthy.

British Medical Journal.

THE MOUTH MIRROR.

By Dr. H. B. TILESTON, LOUISVILLE, KY.

To my mind the mouth-mirror is by far the most useful instrument to be found on the operating table of the dental surgeon. So varied and numerous are its uses that it may be referred to as a veritable *multum in parvo*. Not only is it useful to reflect to the eye of the operator the surface upon which he is working, but it also serves to direct and condense the light upon this surface. It may be employed as a tongue-depressor, a cheek-distender, a mouth-dilator, as an assistant to hold pieces of gold or amalgam while being condensed to place, to hold pellets of absorbent material, and even as a matrix. Or it may often serve in several of these capacities at one time.

For example: When a patient is seated in the chair, my first move is to take the mouth mirror in my left hand and there it remains, serving in all the capacities above mentioned from time to time. If by any chance it be mislaid, I cannot proceed until it is found and restored to my hand. To me, therefore, it is indeed the most useful of instruments. I do not know whether I find more uses for the mouth-mirror than other operators or not, but there is one method of using it to which every operator should accustom himself, and if I can, by speaking of it here, cause anyone who has not done so before to school himself to so use it, I shall have done something worth the doing.

I refer to the most common of all its uses, that of reflecting the surfaces or points upon which we are operating. In excavating and filling cavities in the superior bicuspids and molars, on the morsal, mesial, distal or palatal surfaces, or upon the palatal, mesial, or distal surfaces of the superior anterior teeth, I never see anything but the reflected image of the tooth. And my habit of so operating has saved me many a tired, aching back, and perhaps by this time a

permanent deformity in a crooked spine and contracted, diseased chest.

In operating upon the class of cavities just mentioned, the chair should be low and tilted back but slightly, the operator should stand upright at the side of patient's head and to the rear of the chair, so as to be entirely free from contact with the body of patient. Holding the mirror in the left hand, the left arm is rested lightly upon the arm-support attached to the side of head-rest, in which posture the glass may be held steadily in any desired position or angle, both reflecting the image of the tooth to the eye and directing the rays of light into the cavity. This position gives the operator the greatest freedom of movement of the right arm and shoulder which is not the case where the body is bent over to the right to look directly into a cavity in the upper teeth, for then the shoulder and upper arm are so cramped as to be entirely ineffective, and only the wrist is free to move. Then again, in this latter position, the eyes are hampered in their vision, and especially in their power to accurately gauge distances, by being brought into a vertical instead of horizontal position.

Dental Digest.

CHEMISTS v. DENTISTS.

A recent editorial in the *Dental Cosmos* says, "A recent prosecution by the British Dental Association of a chemist for the illegal practice of Dentistry at Cardiff has naturally aroused much indignation upon the part of the chemists, or, as they are known in this country, apothecaries, who it appears have enjoyed a considerable revenue from the extraction of teeth, and, in numerous instances, from the performance of other dental operations.

Several other prosecutions have been brought, with the result that the provisions of the "Dentists Act" have in each instance been sustained.

The real issue appears to hang upon the meaning of the word "qualified," as used in the act as applied to practitioners of dentistry. The interpretation of "qualified" by th

who have been sufferers from its effects is, in some cases, amusing to say the least.

In a letter published in the September issue of the *Chemist and Druggist*, a correspondent who signs himself "Dens" says,—

"Can we fight the Dentists? In my opinion we *must*. Having extracted, probably, ten thousand teeth during the past thirteen years, I consider myself 'highly qualified' to perform these operations, and should resent any interference with what I consider my just rights. From the astounding decisions of the Cardiff stipendiary our rights appear to be in peril."

There can be no question of the specific qualification of an extractor of teeth whose ghastly record has reached ten thousand operations. It is not that he lacks qualification to do the operation, but rather that he lacks the judgment to restrain himself from needlessly doing it. The letter quoted is but one of many in which the real reason for opposition to the prohibitive effect of the Dentists Act is the cutting off of a more or less lucrative part of the business of the chemist. There can be no doubt as to the final result of the controversy which the chemists are now raising a fund to prosecute to a conclusion. The rightfulness of the act prohibiting the practice of dentistry by those who are incompetent will be sustained by the courts of England just as the same principle has been sustained everywhere that such laws exist.

Laws prohibiting incompetent persons from practicing any department of the healing art are founded upon the broad question of the right of a community to protect itself from injury, a right which is incontestable. And when a community enacts a law establishing the standard of competency of its practitioners of medicine or dentistry, the constitutionality of such an act can only be called in question when it can be shown that its provisions are inequitable in their application.

The English law, as do all others of similar intent, establishes not only the standard of competency, but indicates the means by which such competency may be attained, and the only hardship that results is in its effect upon the class of individuals who want the emoluments of professional work and who are unwilling to fulfill the requirements which enable them to legally attain them. The fact that certain chemists have attained proficiency in the art of relieving their clients of their dental organs is in no degree evidence that they are

competent, much less qualified, in the sense which the law intends they should be. If their claim were cenceded, then by the same reasoning they should be permitted to perform any other surgical operation in which continued practising upon a long-suffering public had developed for them a reasonable proficiency.

There can be no doubt as to the final outcome of the chemico-dental controversy, with the result that the chemists will find that, even though they "can fight the dentists," they will lose the fight on the issue as raised."

The Dental Cosmos.

SURGICAL TREATMENT OF SPASMODIC LOCKJAW.

Kocher (*Cem. Med.*, December 18th, 1896) gives an account of his treatment of a case of spasmodic lockjaw. The patient was a woman, aged 28. Some years previously she began to suffer from acute lockjaw. This came and went; she was, however, able to separate the jaws a little and to eat. Later it became necessary to open the jaws forcibly to feed her. Arthrotomy of the temporo-maxillary joint was performed, and a partially dislocated fibro-cartilage was excised. The lockjaw recurred in a few days. Prolonged treatment by wooden and india-rubber wedges only gave temporary relief; cocaine injected into the muscles gave none. A further operation was undertaken in which one of the insertions of the masseter, temporal and internal pterygoid, were detached. From that time the spasm entirely ceased, and did not recur again for six years. At the present time they had again recurred, and another operation similar to the last was contemplated. Spasmodic lockjaw may follow organic lesion of the brain or may occur in Duchenne's disease. A painful peripheral affection—for example, pain consecutive to the cutting of a wisdom tooth, rheumatic arthritis of the temporo-maxillary joint, or rarely a painful lesion at any other spot in the body—may cause it. Reflex spasms are also met with in nervous hysterical subjects. None of these causes were, however, present in this patient. There is a manifest resem-

blance between spasmodic lockjaw and spasmodic wryneck, not only as regards their clinical manifestations, but also in respect of the effects of the various methods of their treatment. In either case ordinary suggestion does little, while detachment of the affected muscles gives very favourable results. These facts permit us to class this form of spasmodic lockjaw with spasmodic wryneck and convulsive tic in one nosological group of idiopathic spasmodic neuroses, differentiating it also from hysteria.

British Medical Journal.

DENTIFRICES.

By Miss OLIE M. CONKLIN.

In a good dentifrice it is necessary to have an antiseptic to check this fermentation and to kill all bacilli. Still another injury to the teeth is tartar.

The teeth can be kept free from tartar by means of a brush, aided by some polishing agent, which should not be hard enough to do any injury to the enamel. Hence another requisite in a dentifrice is a good polishing agent.

Nitric acid will remove tartar readily, but will destroy the enamel. A tooth placed in concentrated nitric acid was completely dissolved in forty-eight hours.

The most essential things in a tooth powder for general use are a good polishing agent and an antiseptic.

Soap is used as a cleansing agent, but it is difficult to state just how it acts in the mouth. Flavouring, sweetening, and colouring may be added to make the powder more agreeable. Sugar should be used sparingly, for if any be left in the mouth it is liable to cause decay of the teeth by setting up fermentation. Saccharin may be used with perfect safety, giving the required sweetness and doing no harm, as it is not fermentable. I have found 1 part of purified saccharin in 2000 to be sufficient, too much causing a disagreeable nauseous taste.

Astringents are useful in cases of spongy gums, but are objectionable for ordinary use, because they cause the gums to shrink, leaving the crown in an exposed condition. Of

the bases an impalpable precipitated chalk is one of the best. It has a good polishing effect, but should be well sifted and should contain no grit.

Prepared chalk is not as good as precipitated. It is too sticky, and adheres closely to the teeth, giving trouble. Many other bases have been used, among them being cuttlefish bone.

Cuttlefish is gritty; it has a salty taste, and is not a good polishing agent. If used at all, only the soft inside portion should be employed.

Egg shells have been used but they offer no advantages and are liable to contain grit.

Charcoal is sometimes recommended, but while being a good deodoriser, it is liable to get in between the teeth and under the gums, causing discolouration.

Orris root and starches are not advisable, because they are easily fermented, and if allowed to remain in the mouth would set up fermentation, just as food would.

Pumice stone is too gritty and hard, and should be used only in special cases, and then only occasionally, as its continued use wears away the enamel.

As precipitated chalk is one of the best polishing agents, it is well to examine some of the samples on the market. Their quality was compared by elutriation and by specific gravity.

The microscope is a valuable aid in determining whether the chalk is crystalline or not. Six samples were mounted dry.

The next thing to be considered is the antiseptic. The antiseptic in a dentifrice should be powerful enough to check all fermentation and to kill all bacilli. It should be non-volatile, so that the powder may keep its antiseptic properties when exposed.

Carbolic acid is sometimes used, but the odour is disliked by many, and it has a somewhat caustic effect on the mouth. The better the quality of the acid the less odour and taste it has.

A tooth placed in carbolic acid for twelve hours was not found injured in any way.

Permanganate of potassium is used as a mouth wash where there are carious teeth. It was found to cause discoloration where there was an imperfection in the enamel.

In a powder the permanganate may be very finely diffused, but it is quite soluble, and when water is added it will be separ-

ated from the chalk by solution, and is liable to dissolve the teeth by getting into crevices where the brush may not reach, although the brush would lessen the danger.

Thymol may be used where a cooling taste is liked. This can be advantageously used in the proportions of 1-1000.

Boric acid was found to have no effect on the enamel of a tooth placed in it for several weeks. It acts as a detergent, and is soothing and disinfecting. Its taste is somewhat bitter, but this disadvantage can be easily covered by the flavouring, etc. For use in a powder it must be in an impalpable powder.

Eugenol, eucalyptol, formic aldehyde, etc., were found to be too pungent and too volatile. Beta-naphthol has very powerful bactericidal properties, 1 part in 1000 being sufficient to preserve anatomical specimens. Its odour is slight and pleasant; taste is pungent in large quantities, but in small amounts with chalk it leaves a very pleasant, clean sensation in the mouth. It is soluble in 1-1000 of water, and is permanent.

A mixture of beta-naphthol and boric acid is said to be more powerful as an antiseptic than either taken alone.

Hydrogen peroxide leaves a very pleasant sensation in the mouth, and is useful to whiten the teeth, but it is not a practical thing to put in a tooth powder because it is so readily decomposed.

Benzoin and tolu are also antiseptics, but are too gummy and will adhere to the teeth.

The soap most readily obtained on the market is castile.

The following formula is a good one for general use. It has all the requisites of a good dentifrice, and leaves a pleasant cooling sensation in the mouth :—

No. 1.	Menthol	...	...	...	...	...	100
	Beta-naphthol	...	...	...	...	...	050
	Saccharin	...	...	...	...	...	025
	Calcium Carbonate (precip)	...	...	...	...	50	
	Soap	...	...	...	...	...	500
	Oil of Rose, q.s:						

A nice formula for a violet tooth powder for continued use is the following :—

No. 2.	Beta-naphthol	...	...	...	...	...	050
	Saccharin	...	...	...	...	...	025
	Soap	...	...	...	...	1.	
	Calcium carbonate (precip.)	...	...	...	...	50	

Spearmint, cassia and gaultheria give a pleasant combination. Oil of gaultheria 2 parts, and oil of cassia one part is also good. Oils of gaultheria, cassia, and sassafras make an agreeable combination.

Various other combinations of the volatile oils were tried, among them being peppermint, cassia, and anise. This was not satisfactory ; there being no blending of flavours.

For spongy gums a myrrh dentifrice is useful. Have found common salt to be one of the best things to disguise the taste of myrrh. It not only covers the taste, but aids the myrrh in action, being slightly astringent and tonic.

No. 3.	Myrrh	...	...	...	...	1'00
	Sodium chloride	...	...	...	...	1'00
	Soap	...	...	...	...	.50
	Chalk precipitated	...	...	...	...	50'00
	Oil of Rose q.s. to flavour.					

Sweetening in this formula was found to destroy all blending flavours, making a very disagreeable powder.

Camphor is said to injure the enamel, but a tooth placed in powdered camphor for a week was not found to be injured in any way. One per cent. of camphor may be added to a tooth powder for use in case of spongy gums. The following gives a satisfactory formula :—

No. 4.	Camphor	...	...	...	...	.500
	Soap	...	...	...	...	1'
	Saccharin	...	...	...	...	.025
	Thymol	...	...	...	...	.050
	Chalk	...	...	...	...	50'
	Oil of Sassafras, 1-2 gtts.					

Dissolve the camphor in a little warm alcohol and pour on to the chalk, triturating until the alcohol is all dissolved. The thymol should be diffused in the same way. Menthol should also be diffused in this way.

All the powders should be well sifted through a very fine sieve. This removes all the coarser particles and aids in mixing the ingredients.

No. 5.	Camphor	...	...	...	...	.500
	Soap	...	...	...	...	1'
	Saccharin	...	...	...	...	.025
	Calcium Carbonate	...	...	...	...
	Oil of Sassafras, 2 gtts.					

No. 6. Same as No. 1, flavoured with oil of cassia, 1 gtt., and oil of gaultheria, 2 gtts.

Dental News.

HIGH COURT OF JUSTICE.

QUEEN'S BENCH DIVISION.

(Before the LORD CHIEF JUSTICE and a Special Jury.)

CAVENDISH V. THE AMERICAN DENTAL INSTITUTE.

In this action Mr. Richard Cotton Cavendish claimed damages from the American Dental Institute on the ground of the alleged negligence of one of their operators in attending upon him and putting in certain artificial teeth. The defendants denied that there had been any negligence on the part of their operator.

Mr. Bingham, Q.C., and Mr. Eldon Bankes appeared for the plaintiff; and Mr. Dickens, Q.C., and Mr. Hohler were counsel for the defendants.

Mr. Bankes, in opening the case for the plaintiff, said that Mr. Cavendish had for some years suffered from his teeth, and in January, 1894, he consulted the defendants, the American Dental Institute. He went to the South Kensington branch in Thurloe-square, where he saw a Mr. McCormick, who examined him and told him that he could very soon put him all right at the charge of £5 a tooth. The plaintiff thereupon went every day to the establishment at Thurloe-square for a week, and was supplied with practically a new set of teeth in his upper jaw. The chief operation was the crowning of dead teeth, which was done by placing a crown of gold over the dead tooth. This was done and Mr. Cavendish's mouth became unbearably sore. He went down to Brighton and when there two of these new teeth mysteriously disappeared. He thereupon went to the Brighton branch of the American Dental Institute, but there they told him that as he had been attended at the South Kensington branch he must go back there. So he went back and saw Mr. McCormick again, who said that the fault had not been his, but that the work of his workmen had been bad. From this time Mr. Cavendish suffered terribly from abscesses in the mouth, and his health was seriously affected. He had then to consult his medical adviser, Dr. Glanville, who found him suffering from indigestion and sleeplessness. Subsequently Mr. Cavendish went to another dentist, Dr. Boswell, who took out the plate which had been put in by Mr. McCormick and substituted a fresh one and readjusted the teeth, and from that time Mr. Cavendish suffered no more pain or discomfort. The fact was that Mr. McCormick had done his work disgracefully, and Dr. Boswell did it thoroughly well. Mr. Cavendish had been charged 60 guineas by Mr. McCormick, and that money had been completely thrown away. Mr. Bankes went on to tell the jury the defects which were found in Mr. Cavendish's teeth, and the mischief which had ensued. He should call a number of distinguished dental surgeons, and they would say that Mr. Cavendish's teeth had been subjected to improper treatment.

Mr. Richard Cotton Cavendish said he resided at 4, Down-street, Piccadilly, and had been in the Army. In January, 1894, he went to the Thurloe-square branch of the defendant company. At that time his teeth were disfigured, and broken off in front. He saw Mr. McCormick, who said that he must put in new teeth on top of the old ones, and he told him he would never suffer from toothache again. He first broke off two of the front teeth, and witness attended every day for a week, and a plate or bridge was made and fixed in his mouth. Witness paid £60, and then a few days afterwards went down to Brighton. While there, on waking up one morning, he discovered three front teeth were miss-

ing. The plate was fastened into his mouth so that it could not be taken out. Witness at once went to the Brighton branch of the American Dental Institute, and they advised him to go back to Mr. M'Cormick. That was about a fortnight after the teeth had been put in. Mr. M'Cormick removed the plate and accounted for what had happened by saying he could not get his work properly done downstairs. Witness had the plate refixed, and then his mouth began to get sore again, and he could not eat or masticate his food. Mr. M'Cormick lanced his mouth and subsequently told him to go to his doctor. The teeth never remained firm. In the summer of 1894 the plate broke in two in the plaintiff's mouth, and it caused him great pain. He went to Mr. M'Cormick, who again put this down to the bad workmanship downstairs. Mr. M'Cormick mended the old plate and put it back again. After this, however, witness suffered the same inconvenience he had suffered before. His health became bad, and he could not take any solid food. In consequence he had to go to see his doctor, and subsequently he went to Dr. Boswell, who was also an American dentist, and he removed the plate, which gave him great relief. This was in March, 1896, and a fresh plate was put in by Dr. Boswell, which witness still kept in. He paid Dr. Boswell 60 guineas, and had suffered no pain or inconvenience since. Exactly the same kind of plate was put in by Dr. Boswell.

Cross-examined by Mr. Dickens.—Witness had been to several dentists in the last few years. His wife did not tell Mr. M'Cormick that he was in the habit of gnashing his teeth. When the plate broke in two Mr. M'Cormick put right what he complained of, and did not send in another account. He did not go to any other dentist till 1896. He denied that he was subject to fits.

Dr. Glanville said he had attended the plaintiff for the last 18 years, and he was a man of fairly good health. In January, 1894, he complained of his teeth, and said he had been to the Dental Institute and had a plate put in. Witness prescribed a wash for his mouth. Subsequently he suffered from indigestion and gumboils, and witness had to lance his mouth. Witness sent him back to his dentist, and in October, 1895, witness found him suffering very much from his mouth, and his general health was bad owing to his teeth. There were some indications in Mr. Cavendish's state on one occasion that he might have had a fit, but during the whole time he had known him he had never been aware of his having had one. Since he had been attended by Dr. Boswell he had been in perfect health.

Cross-examined.—Witness certainly did not tell Mr. M'Cormick that the plaintiff was subject to fits, or that he clenched his teeth.

By the Lord Chief Justice.—He found no further symptom to support the one which he observed, and which might have indicated that the plaintiff had had a fit.

Cross-examination (continued).—The conclusion he drew was that the symptom he observed was caused by the irritation of the teeth.

Mr. Tomes, F.R.C.S., F.R.S., a consulting dentist, of Cavendish-square, said he had examined the plaintiff's mouth and the plate which had been originally put in. He was of opinion it was a bad piece of work, and the teeth had been put in in a slovenly way. The witness described how, in his opinion, each tooth ought to have been treated. He was of opinion that the proper measures were not taken. The plate was too thin, and the workmanship bad or ill-judged, considering the strain that would be brought to bear on it.

Cross-examined.—Bridge work was done by English dentists, but not so largely as in America. If the operator did not see or was not told of the gumboils he would not have detected that a tooth was dead. He did not observe on the plate any signs of unusual friction, but if a man gnashed his teeth it would be more liable to accident.

Mr. Morton Alfred Smale, L.D.S. Eng., another dentist of Cavendish-square, also gave his opinion that the bridge was not a well-made one. He agreed that if the teeth were dead at the time of the operation they should have been drilled, and the roots filled up.

Cross-examined.—If the teeth were alive at the time that Mr. McCormick operated he did all that was right. He thought, in the first instance, all that was necessary might have been done.

Dr. Packe, a doctor of the Medical Faculty of New York, practising in Harley-street, said he had examined the bridge work and considered it a very bad piece of work, because it was too slight to stand the ordinary strains that would naturally come on it. It caused a pressure on the front teeth and he thought a condition of inflammation would be set up, and the front teeth might be broken off. The price charged, £5 per tooth, ought to have commanded a good job.

Cross-examined.—His opinion was that the cap ought to have been four times as thick as it was, in spite of the fact that the plaintiff wore it from 1894 to 1896.

Mr. Dickens then opened the case for the defendants, and pointed out that, though after the way Dr. Boswell had acted he was not surprised his friend had not called him, still it was a remarkable thing that he wrote disapproving of this action, and offering information to the defendants which might be of value. The Dental Institute had previously had litigation with Dr. Boswell and had obtained an injunction against him. Boswell was not a witness whom the defendants could call, but it certainly was remarkable that he should have written this letter. The evidence which had been given by the dental surgeons negatived the suggestion that there had been any inferior work. Counsel contended that the accident to the gentleman's teeth was caused by his habit of grinding them. He also pointed out that the particulars of negligence alleged were that the teeth were badly made and did not fit, that the gold used was of inferior quality, and that there were holes in the plate. Of these defects there was no evidence, except as to the latter point, and it appeared the holes had been made subsequently to the plate having been put in.

Mr. McCormick was called, and, in reply to Mr. Hohler, said he was practising at Thurloe-square as a dentist, assistant to the American Dental Institute. He was doctor of dental surgery of the University of New York, and had been in practice six years. He was consulted by the plaintiff, and advised bridge work, and other steps to be taken. At the time witness examined his teeth the two which had been referred to were alive. Witness related the various times he had capped different teeth, and he fixed the bridge on the 26th of January and it fitted the plaintiff's mouth. Witness was unable to use thicker gold on account of the closeness of the bite, in his opinion the thickness used was sufficient. Witness saw plaintiff again on the 9th of March, when he said that, while at Brighton, he had found two front teeth gone when he woke in the morning, and he supposed he had swallowed them. Plaintiff further said he was a living wonder, and that he had been seen by all the most eminent doctors in Europe, and none of them understood his case. Witness on this occasion made new crowns for several teeth, and took out the bridge to remake it. The bridge was very much crushed, and in one place was bitten right through the gold. He saw nothing in the two teeth which led him to believe that they were dead, and the plaintiff did not ever complain of having suffered from gumboils at any of the interviews. The only complaint he once made was that everything tasted sweet to him. He saw Dr. Glanville in 1895, who said he thought witness had done wonders for the plaintiff, who was subject to fits. When plaintiff first came to witness his teeth were broken in such a way as could only have been caused by an accident or grinding of the

teeth. There were no holes in the teeth which he put in except in one.

Cross-examined by Mr. Bankes.—Witness had been in sole charge at the Kensington branch in the absence of any director. It did not occur to witness that the plaintiff's mouth was a class of mouth which required an extra strong bridge. He understood that when Dr. Boswell put in his bridge two of the teeth were dead teeth, and therefore he could use thicker gold. When witness operated those teeth were alive. He had never lanced any gumboils for Mr. Cavendish, and that gentleman made no complaint about having lost the teeth, but merely informed witness of the fact. Although he considered the bridge had been subjected to unfair treatment he was ready to replace it without any further charge. The bridge was, in fact, broken in two. His assistant (Miss Taylor) was present at most of the interviews with the plaintiff. Witness did not recollect ever having told the plaintiff that it was no use his coming complaining to him, but that he ought to go and see a doctor.

Miss Taylor, Dr. McCormick's assistant, said that his account of what had passed at the interviews with the plaintiff when witness was present was correct.

Arthur Still, mechanical dentist in the employment of the defendants said that he made the bridge work in question, and had previously made others of the same thickness.

Cross examined.—Generally the bridges were made of thicker gold.

Dr. Ruby Clifford, managing director of the defendant company, and member of the Dental Institute in New York, said he had had great experience of bridge work. He considered this bridge to be a very good piece of work. If the teeth were dead one could put more gold in than if they were alive.

Cross-examined.—The defendant's business practically belonged to himself and his family. It would have been possible to kill the living tooth, but it would be wrong practice to do it.

By the Lord Chief Justice.—Witness could give no explanation why in the plaintiff's case the treatment had not proved successful.

Mr. Isidore Clifford, a licentiate of dental surgery of the Royal College of Surgeons, and a director of the defendant company, also gave evidence agreeing with that of his brother, the last witness.

Further evidence was given by Dr. Meadows, a licentiate of dental surgery, of Toronto and Philadelphia, and this closed the defendant's case. The court then adjourned.

The plaintiff, in reply to Mr. Bankes, denied that he had told Dr. McCormick, as that gentleman had alleged in his evidence, that he was a living wonder, or that he had been seen by all the most eminent doctors in Europe.

By Mr. Dickens, Q.C.—Witness had seen various doctors and dentists.

By the Lord Chief Justice.—Witness had served six years with the Army in India.

This closed the evidence, and, counsel on either side having addressed the jury,

The Lord Chief Justice summed up, and, after reading through the important parts of the evidence which had been given and having carefully reviewed it, told the jury that the plaintiff could only make out his case if he satisfied them that the defendants had been wanting in some duty to him by failing to use reasonable skill and care in the measures they took for his treatment.

In the result,

The jury found a verdict for the plaintiff, and assessed the damages at £150.

Judgment was given accordingly, with costs.

PROSECUTION OF SEVEN UNREGISTERED MEN AT BRIGHTON.

On the 19th inst., at the Brighton Police Court, before the stipendiary, Mr. C. G. Heathcote, and other magistrates, Moses Harris, 99, Western Road; A. Ferguson, alias Cutler, 12, East Street; M. D. Dinjian, manager of the American Dental Institute, limited, 123, King's Road; E. Woods Oxborrow, of the Anglo-American Dental Company, 114, Queen's Road; E. S. Foley, 89, King's Road; E. P. Day, 15, Old Steine; and H. J. Barker, 18, Trafalgar Street, were summoned for using the title of "Dentist," and representing themselves as qualified in dentistry, contrary to the provisions of the Dentists' Act, 1878. All the defendants pleaded "not guilty."

Mr. R. E. Moore, barrister, in place of Mr. Marshall Hall (instructed by Messrs. Blaber and Watson, solicitors, of 12, Great Castle Street, Oxford Circus, W.), appeared to prosecute on behalf of several registered dentists in Brighton; Mr. Purcell (instructed by Messrs. F. Richardson and Sadler) solicitors, appeared for Mr. Dinjian; Mr. Clydesdale, barrister, appeared for Mr. Harris; Mr. A. V. Treacher, solicitor, appeared for Mr. Foley; Mr. H. Prince, solicitor, for Mr. Day; Mr. Holmes, solicitor, for Mr. Barker; and Mr. Buckwell, solicitor, for Mr. Ferguson.

The case against Mr. Harris was taken first, and Mr. Moore, in opening the case against the defendants, explained that this prosecution was taken under the Dentists' Act of 1878, in section 3 of which it was provided "that from and after 1st day of August, 1879, a person shall not be entitled to take or use the name or title of dentist either alone or in combination with any other word or words, or of dental practitioner or any name, title, addition or description implying that he is registered under this Act, or that he is a person specially qualified to practice dentistry, unless registered under the Act." It was declared that the "words, title, addition, or description," used in the Dentists' Act, 1878, included any title, addition to a name, designation or description, whether expressed in words or by letters, or partly in one way and partly in the other." Any person who, after the 1st August, 1879, not being registered under the Act, takes or uses any such name, title, addition, or description as aforesaid, shall be liable on summary conviction to a fine not exceeding £20, provided that nothing in the section shall apply to legally qualified medical practitioners." Mr. Moore said that there was an exception in the case of persons not ordinarily resident in the United Kingdom, who held a qualification which entitled him to practise Dentistry or Dental Surgery in a British possession, or in a foreign country, and that he did not represent himself to be registered under the Act. This exception, however, he contended, it was for the defendants to prove if they could. He put in the register with the view of showing that Mr. Harris's name was not on it.

Mr. Moore further explained that the prosecution was undertaken in the interests of the registered members of the profession, and also for the protection of the public, who should be guarded against the unskilful treatment which they were constantly receiving at the hands of men who set themselves up as duly registered and competent dentists. In consequence of the ignorance of the public, especially amongst the poorer classes, as to who were and who were not qualified dentists, many were taken in by "poachers upon the profession," charged exorbitant prices, and received unskilful and often injurious treatment. It was also not generally known amongst the public that any unqualified dentist could not hope to recover fees in any court of law for work done.

Mr. Moore drew attention to section 3, which provided that unless a person was duly qualified by being on the register, he was not entitled to use in any way the titles, "dentist," "dental-surgeon," "surgeon-

dentist," or "American-dentist." He then put in the register with a view to showing that Mr. Harris's name did not appear in it.

Frederick Robert Baldry, private enquiry agent, of 52, Lillington Street, Pimlico, said he visited the defendant's premises accompanied by Henry Kemp, of 21, Martindale Road, Balham, on December 23rd last. There was a case outside the house with the words "Gold medallist," and "English and American Tooth Company; single tooth 2/6." On the window was painted the words "Gold diplomatist." They rang the bell, and were shown by a boy into the front room on the ground floor, where they saw the defendant. Witness said to defendant, "Are you Mr. Harris, the dentist?" and he replied "Yes," and asked witness to a back room fitted as a dentist's operating room. Witness asked him to examine his mouth, and he did so, and said the back teeth wanted taking out, and new ones put in. Witness asked what the price would be, and defendant replied that he could do it at any price (laughter). Witness said he wanted the work done well, and defendant then mentioned one guinea to five guineas. Witness arranged, if he had the work done, to pay three guineas, and defendant stated that for that sum he would do them well. Defendant also told Kemp he ought to have some teeth made, but Kemp declined until the teeth were made for witness. Witness gave the name of Whiteley. An arrangement was made for witness to return and have the stumps drawn. Defendant gave witness a circular on leaving.

Mr. Moore read this circular, which was headed "Highest award gold medal," and described artificial teeth as "formerly the luxury of the rich; now a comfort of life within the reach of the poorest." Mr. Harris was stated to be a specialist in the American work.

Witness, in further examination said he asked defendant if he was a qualified dentist, and he replied "Yes."

Cross-examined by Mr. Clydesdale, witness said this was his first experience amongst dentists in Brighton, he was specially instructed by Mr. White to visit Mr. Harris's. Mr. White had employed him before as a private enquiry agent. He did not know who instructed Mr. White. He denied that Mr. Harris said "I am not a dentist." Mr. Harris did not hand him a business card. Kemp was also in the employ of the Detective Agency.

George Woods, private enquiry agent, of 21, Epple-road, Fulham, said that on January 5th, he went with Miss E. A. Watts, of 57, Alderney Street, Pimlico, to the defendant's premises in Western Road. Outside there was a case of artificial teeth with "Harris, dentist," "English and American dentist. Complete set. £1 1s." In one of the windows there was a working model of moving teeth, and under this the words, "Diplome d'honneur, Paris, 1893."

At this point Mr. Clydesdale requested that Miss Watts should leave the Court while this witness was giving evidence, and the request was complied with.

Witness, proceeding, said he rang the bell and saw defendant, and asked if he was Mr. Harris, the dentist, and he replied, "Yes, I am; come this way," and showed them into the surgery. The room contained a dentist's chair and two other chairs where you could sit down "like anybody would with anybody." (Laughter.) Miss Watts consulted defendant about her teeth. Defendant told her that she wanted two new teeth and that he would supply them for a guinea, and stop some others for 7s 6d. He came down to 5s. for the stopping and 15s. for the teeth, and then finally to do the lot for 15s. A deposit of half a crown was offered, and defendant then said, "Make it 3s.; it will be even money when you come back to fetch them. (Loud laughter.) During the interview, defendant took an impression of witness's mouth

and also of Miss Watt's. Defendant afterwards offered to make a set for witness for 47s., or a better quality for £3 3s., a set that would last him a life time, and that he could crack nuts with. (Laughter.) Witness consented, and defendant took an impression.

Cross-examined, defendant was not described as a dentist on the receipt.

The Stipendiary: I suppose it is admitted that he practises as a dentist.

Mr. Clydesdale: I don't deny that he practices the mechanical part of the work, but not surgeon dentistry. In his card he describes himself as a manufacturer of artificial teeth. I shall contend that he never held himself out as a dentist.

Eliza Alice Watts, 57, Alderney Street, Pimlico, generally corroborated the testimony of the last witness as to the visits to Mr. Harris's premises on the 4th January.

For the defence, Mr. Clydesdale called Mr. H. L. Goodman, dentist, who said he had known the defendant for twenty-six years, during twenty-two of which he had been a dentist.

The Stipendiary said it surely could not then be contended that defendant did not practise dentistry.

Mr. Clydesdale said he was unable to deny that there had been a technical offence. His point was, however, that defendant was engaged in the manufacture of artificial teeth before the Act, and that he had never held himself out as a dentist within the meaning of the Act. He stated that there was a case now in the High Court in which a number of dentists who were practising at the time of the Act, including Mr. Harris, were claiming to be placed on the Register, and urged that a prosecution while this action was pending was a harsh act. He asked that the case might be postponed until the High Court had decided whether these persons were entitled to be placed on the register. Defendant was entitled to be placed on the register, and had, in fact, applied to the committee after the passing of the Act of 1878, but had received a letter to say he was too late. This letter was now produced.

Mr. Moore said that in view of the facts that had been mentioned, of which he had been unaware, he would not press for more than a nominal penalty. If the circumstances mentioned were correct, defendant had been entitled at the passing of the Act to be placed on the register, and why he had neglected to take advantage of the opportunity he could not conceive. He had only himself to blame that he was in Court that day. He asked for a nominal penalty in order that the fact might be made known that unregistered persons might not practise as dentists.

The Stipendiary said the committee might have had other reasons for not placing defendant on the register, and he thought it preferable that the case should be adjourned until the hearing of the actions in the High Court. The case was then adjourned for eight weeks.

The case against Mr. E. S. Foley, of 89, King's Road, was next heard, Mr. Treacher, solicitor, appearing for the defendant.

Frederick Robert Baldry was again called, and said he visited 89, King's Road, on December 22nd, with Mr. Kemp. On a brass plate on the front door was the inscription—"Foley, surgeon dentist." Over the bell-pull were the words "Dentist's bell" and on the balcony "Mr. Foley, American dentist." A woman answered the bell, and told him Mr. Foley was out, and with her he made an appointment to call another day.

Eliza Watts said on January 6th she visited defendant's premises with Wood, and she saw the words "Foley, dentist," on the window of the third floor, and over the bell "Dentist's bell," and she made an appointment for January 8th, and saw a gentleman, not the defendant, who

stopped her tooth. Whilst in the chair, Mr. Foley came in, and she asked him if he was Mr. Foley, the dentist, and he said "Yes he was."

George Woods was asked the same questions, and corroborated the last witness as to the visit on January 8th.

Mr. Treacher objected to any evidence being taken as regarded that date. The summons referred to what took place on December 22nd, and he contended that what happened on January 6th had nothing to do with it.

Mr. Treacher pointed out that defendant's name was on the register though not at his Brighton address.

Mr. Moore said he was instructed that defendant was not the man. The witnesses now declared that the Mr. Foley in Court was not the man they had seen at 89, King's Road. He ascertained that the two men were brothers, and it was the brother (not the defendant) who was unregistered. This accounted for the mistake.

Mr. Treacher said defendant had a practice in London and had only recently opened in Brighton.

Mr. Moore said that under those circumstances he could no longer press the case, though it was clear there had been a mistake as to the identity of the defendant.

The summons was dismissed with costs.

The case against Mr. Manoog Dinjian, manager of the American Dental Institute, 123, King's Road, was next taken.

Mr. Moore, in opening the case, said the circumstances were different in this instance. The defendant was the manager of the American Dental Institute, limited, at their Brighton Branch at 123, King's Road, and the case was somewhat complicated, as it might be affected by the Companies' Act. He should, however, bring evidence to show that defendant had held himself out as a qualified dentist, but was not in fact on the register.

Frederick Robert Baldry said on December 22nd he visited 123, King's Road, accompanied by Mr. Kemp, and was shown into a room. After a time he saw defendant, and asked him if he were "Dr. Dinjian, the dentist." He replied "Yes, I am the manager." Defendant examined his mouth, and said some of his teeth would have to come out, and asked whether he would have gas or not, remarking that if he did so he would have to have a doctor, which would cost him at least 10s. a visit. Witness could have his own doctor if he liked. Some more conversation followed, and witness asked defendant if he was a qualified dentist, and he replied that he was. Defendant also gave him the card now produced. Finally witness made an appointment for another time.

George Woods was called, and deposed that on January 6th he went with Miss Watts to the premises, where he saw Dr. Dinjian the defendant. He asked defendant if he was a dentist, and he replied "Yes."

For the defence Mr. Purcell contended that there was not sufficient evidence of the use of a designation implying that defendant was specially qualified.

He called Mr. Clifford, one of the Directors of the Company, who stated that the directors and shareholders of the Company numbered seven, all of whom were registered dentists. They had a registered dentist in their employ at every branch. Mr. Dinjian was a graduate of Maryland University and a prizeman for dentistry. He was a dentist of skill and experience.

Mr. Purcell urged that because defendant once said he was a dentist, it did not cover the meaning of the words "taking and using the name of dentist." They must have something much more definite and explicit

than the using of the word dentist upon one occasion. He also doubted whether they could accept the testimony of the witness. He called

Mr. Isidore Clifford, of 8 Grosvenor Street, London, W., a director of the Institute, who said the directors were all registered dentists. The Brighton Branch of the Institute had been established 10 years, and they had other branches all over the country: Defendant was entitled to be put on the dentists' register on the strength of his medical examinations.

Cross-examined by Mr. Moore, he said the shareholders of the company numbered seven, and he admitted that they were all relatives. He also admitted that Dr. Dinjian had not taken steps to register himself, but intended to do so shortly.

The Stipendiary said he did not think there was sufficient evidence to prove that defendant had held himself out as a qualified dentist, and dismissed the case.

Mr. Purcell, on behalf of Mr. Dinjian, applied for costs, but the Stipendiary did not think it was a case in which he could allow costs, and refused the application.

The remaining summonses were then adjourned for a week.

The important and interesting prosecutions commenced last week were resumed on Tuesday, the 26th inst., at the Brighton Borough Police Court, before the Stipendiary (Mr. C. G. Heathcote), and other magistrates.

The defendants were A. Ferguson (alias Cutler), 12, East Street; E. Woods Oxborrow, of the Anglo-American Dental Company, 114, Queen's Road; Dr. E. P. Day, 15, Old Steine; and H. J. Barker, 18, Trafalgar Street; Mr. E. Marshall Hall, barrister and Mr. R. E. Moore, barrister, (instructed by Messrs. Blaber and Watson, solicitors, of 12, Great Castle Street, Oxford Circus, W.), appeared to prosecute on behalf of the dental profession in Brighton. Mr. Purcell, barrister, defended Mr. Day, and Mr. Ferguson, (instructed respectively by Mr. Prince and Mr. Buckwell). Mr. Tickle appeared for Mr. Oxborrow, and Mr. Leonard Holmes for Mr. Barker.

The case against Dr. Day was taken first.

Mr. Marshall Hall said the case was much the same as those already heard. Visits were paid to Dr. Day, and arrangements made for the drawing and supplying of teeth. One witness actually had a stump extracted.

The Stipendiary: Out of devotion to his employer? (Laughter).

Mr. Hall did not know about that. He proceeded to state that to convict the defendant it must be proved that he implied that he was registered, or that he was a person specially qualified to practise dentistry. He called,

Henry Kemp, private enquiry agent, of 21, Martindale Road, Balham, who said on December 23rd, he went with Frederick Baldry, to 15, Old Steine. There was a brass plate on the door with "Dr. Day, of Phila., U.S.A.," and just inside the door was a London address, 9, Charles street, St. James's Square. He rang the bell, and a female servant answered. Witness and his companion were shown upstairs to a small room, and as Dr. Day was out, the servant made an appointment for next day. Witness gave name of Whiteley. On the next day witness and Baldry again called and were shown into a surgery where Dr. Day was waiting. Witness asked "Are you Dr. Day, the dentist?" He replied "Yes." Witness told him he wanted his nephew's teeth attended to, meaning Baldry. The latter sat in a surgical chair and his mouth was examined. Dr. Day said some of the stumps ought to come out, and offered to do the work and supply false teeth from £1 ls. upwards. They agreed to

pay £6 6s., which would include gas. Witness then said "I suppose you are a qualified dentist?" He replied "Oh, yes." While Baldry was in the chair, one stump was taken out. A further appointment was made for Monday, December 28th, and five shillings deposit was paid. Dr. Day told witness he ought to have a new set of teeth. He replied that he could eat his food well enough, to which Dr. Day retorted, "but see how much better you could eat it if you had new teeth."

Cross-examined by Mr. Purcell, he said he took notes of the cases. He signed them, and Baldry also signed them. He and Baldry wrote their notes in the street on leaving the houses. He was employed by Mr. Squire White, but his principal master was Mr. Kendal.

George Woods, private enquiry agent, of 21, Epple Road, Fulham, said that on January 5th, he went with Miss Alice Watts to 15, Old Steine, and was shown into a consulting room. He saw defendant, who twice during the visit said he was Dr. Day, the dentist. Miss Watts told him she wanted something done to her teeth. Dr. Day said he could stop a tooth for a guinea. She complained of the price, but he said he did nothing but the best work. An appointment was made for January 12th.

In the course of the interview, witness said to Dr. Day, "Of course you are a qualified dentist, and will do your work well." He replied, "Oh, yes, certainly."

In cross-examination he said he took notes, but refused to hand them to Mr. Purcell.

Frederick Baldry, private enquiry agent, of 52, Lillington Street, Pimlico, corroborated Wood's evidence as to the visit on December 23rd. He signed Wood's notes as correct.

For the defence, Mr. Purcell said the case depended upon the trustworthiness of the witnesses. Fortunately for Dr. Day he was not dependent upon his own denial of the statements to disprove the evidence. Dr. Day was undoubtedly a qualified man, having won his degree after two years' study at Philadelphia, and had been practising since 1878. He had been ten years in England, partly in Chester with a registered dentist. He was aware of his legal or illegal position, and had always been careful to observe the law. He denied that he said he was a dentist, or implied that he was registered.

Mrs. London, housekeeper to Dr. Day, deposed to opening the door to Baldry and Kemp. One of them on one occasion asked Dr. Day 'Are you the dentist?' He said "No, I am Dr. Day."

Cross-examined by Mr. Hall, witness said Dr. Day had not a large practice. He was often in London, and Mr. Foster took charge in his absence.

Mr. Purcell; Mr. Foster is a registered dentist.

Mr. Tyndale, solicitor, Essex Street, Strand, said he had known Dr. Day ten or twelve years. From time to time he had advised him as to his legal position. He was a man of considerable skill and ability.

In cross-examination witness said he warned Dr. Day that if he held himself out as a dentist he would be acting illegally. He endeavoured to register Dr. Day, but failed, owing to the Philadelphian degree not being a qualification.

Re-examined, he said the reason for the failure was that the Philadelphia College did not respond to the Medical Council in London when the invitation was sent in 1888, only two Colleges in America did respond.

Mr. E. G. Foster, practising with Dr. Day at 15, Old Steine, said he was a registered dentist.

Cross-examined he said he paid himself for his registration. He had no qualification as a dentist when registered in 1878. He was the Edward Foster who appeared on the Register. He had a diploma now. His

name was not on the door at 15, Old Steine. He and Dr. Day had an agreement.

Mr. Hall: I suggest that you are covering Dr. Day.

Witness: Nothing of the kind. He shared profits with Dr. Day.

The Stipendiary said he had no reason to doubt the evidence of the three witnesses for the prosecution. He should be surprised if they had committed wilful perjury, because there was no worse kind of false swearing than that of informers. There was nothing in the evidence to make him come to such a conclusion. The evidence was plausible, consistent and clear. It had not been contradicted in any material point by Mrs. London. As to the other two witnesses, he did not think they threw any light upon the case. He thought Dr. Day had held himself out as being a dentist, and there must be a conviction. He, however, took into consideration what had been said as to his competency, because the highest possible penalty would be properly imposed upon a mere charlatan who had no qualifications.

Mr. Marshall Hall said it was with reluctance that the proceedings were taken in this case, because Dr. Day was a most skilful practitioner. (Applause in court, which was promptly suppressed.)

The Stipendiary said the law must be enforced, and imposed a fine of £10, and £3 13s. 6d. costs, or 21 days' hard labour.

The case against A. Ferguson (alias Cutler), of 12, East Street, was then taken.

Mr. Hall said this was a bad case, as the defendant was not only not registered, but incompetent.

Henry Kemp was again called. He said on December 23rd, he went with Baldry to 12, East Street. On the ground floor was a hairdresser's shop, in the name of Cutler & Co. Above were rooms kept by the defendant, and outside the door was a show case of artificial teeth and testimonials. The inscription "Mr. Ferguson, of New York," appeared in two places. He asked for Mr. Ferguson and was introduced to the defendant. Witness said he wished to consult him about his nephew's teeth, and was shown into a surgery. Defendant said the stumps wanted taking out, and that his whole mouth was in a bad state. He said he could take the teeth out without pain, and provide a new set for any sum from £1 1s. He guaranteed them for a number of years. An appointment was made for the following Monday, and Ferguson gave him a circular with numerous testimonials, and his prices for sets of teeth. Witness asked during the conversation "Are you a qualified dentist?" He replied "Yes."

George Woods deposed to paying a visit to 12, East Street, on Jan. 5th, with Miss Watts. He saw defendant and asked if he was the dentist. He replied "Yes," and examined witness's teeth. He said they wanted taking out, and he wished to take one out then to show how painless his process was. He said he could make a set for from £2 2s. to £5 5s. Witness agreed upon a £5 5s. set, and he paid 2/6 on account. Defendant told him it was impossible to make a set for £1 1s. and that when in London he had sacked several men for taking £1 1s. orders.

Frederick Baldry corroborated Kemp's evidence as to the visit on December 23rd.

Frederick Walter Moore, qualified dentist, practising at Preston Road, said he knew the present defendant as Mr. Augustus Cutler. He was articled to him as an apprentice for three years in 1887. He acquired some knowledge of dentistry while with him, being a "fairly decent pupil." After leaving him he went to Mr. Goodman, Ludgate Hill. Defendant had not to his knowledge been to New York.

Mr. Purcell for the defence said there was nothing upon the premises which amounted to calling himself a dentist, or implying that he was registered. One would expect something outside to confirm the charge.

The circulars were a mere declaration that the man was practising dentistry.

Dr. Thorburn, M.D., who has rooms at 12, East Street, said he had known defendant about a year, during which time he had practised dentistry. He was one of the most skilful practitioners he knew. He further backed this up with such warm eulogies that the Stipendiary in a severe tone asked him to leave the witness box.

The Stipendiary said if the business circular did not hold defendant out to be a qualified dentist he did not know what would. He would have to pay a similar fine, £10, and £3 13s. 6d. costs, or go to prison for 21 days with hard labour.

In the case against E. Woods Oxborrow, Mr. Marshall Hall said that defendant's solicitor was unable to contest the summons. He was not surprised, because he actually called himself a registered dentist. He was a young man, and as he had taken the wise course of admitting his offence, he did not press for a heavy penalty.

Mr. Tickle, on behalf of the defendant, said his client had not practised dentistry without qualifications. He accounted for the word registered being used, by the fact that he took the business over from a man who was registered, and he had never altered the wording.

A fine of 40s. and £1 1s. costs was imposed, with the alternative of 14 days' hard labour, and Mr. Tickle gave an undertaking that the words complained of should be removed.

The last case was that against H. J. Barker, who also pleaded guilty. Mr. Hall said here again the word registered was used on an expensive fascia over the shop, with the name J. Barker, the deceased father of the defendant. He understood that it had not been removed, because it would involve extra outlay which could not be afforded. A brass plate with similar words had been taken from the door.

Mr. Holmes, for the defence, made a similar statement, and added that defendant was not carrying on the practice of dentistry. He was selling drugs with his mother, and they were in poor circumstances. In answer to the Stipendiary he said Mr. Barker's father had been dead five years.

The Stipendiary again imposed a fine of 40s. and £1 1s. costs, or 14 days' hard labour.

COUNTY COURT CASES.

SHREWSBURY COUNTY COURT.

At the Shrewsbury County Court, His Honour Judge Lea tried a case in which Mr. Roff King, dentist, of Shrewsbury, who has branches at Llandrindod Wells and other places, claimed the sum of £11 from Mr. John Jones, coal merchant, of Llandrindod. Mr. Clarke (of Messrs. Clarke & Co.), represented the plaintiff, and Mr. E. L. Wallis, (Hereford) appeared for the defendant.

Mr. Wallis ascertained that the case had been dealt with by the Registrar in defendant's absence, and made an application for the case to be reinstated. The Judge agreed to reinstate the case.

Plaintiff stated his degrees, and said he had been practising in Shrewsbury for 20 years. He attended at two or three other places, including Llandrindod. Defendant first came to him on February 6th, 1892, and

asked him to make him some artificial teeth, the price being £10. He made the teeth, and fitted them in defendant's mouth in the ordinary course. Defendant paid him £5 on account. He made no question at all, thinking it might be a matter of convenience to defendant. Mr. Jones had not worn artificial teeth before, and consequently there was a little inconvenience with them, and he altered the plate for him. At this time defendant had several loose teeth, the removal of which he advised. As a matter of fact, defendant wore these teeth from March, 1893, to May 2nd, 1893, when he lost one of his other teeth. Defendant came to Shrewsbury, and he made some alterations. He stated that defendant's gums were "spongy." For the alterations he charged £1. In March, 1895, defendant came to see him and he had lost then another tooth. He altered the case again and charged £2. He supposed the teeth were satisfactory as he did not hear to the contrary. Defendant when he was altering the teeth, said it was extremely inconvenient to be without them, and he told him the only way to avoid that was to have a duplicate case. He made defendant a duplicate set on May 2nd, 1895. The gold case got mislaid, either by himself or defendant, and he therefore made him a new set free of charge. He never had any dispute about the account until last midsummer, when defendant came to him and made a certain offer, pertaining to which he had some correspondence with Mr. Moseley. Mr. Moseley repeated the offer made by defendant, viz. £5 to settle.

Cross-examined: It was his duty to make the teeth fit the mouth. Defendant could speak with the teeth, because he saw him with them in his mouth. Defendant had never complained to him beyond the ordinary little difficulties which were always present when people wore artificial teeth for the first time. It was not true that defendant told him from the first that he could not use the teeth. He certainly did not wish to charge for anything that had been a mistake. The charges he made were for alterations and additions, and it was through an error that the words "and additions" were left out of the account sent to defendant. It was not possible to make additions without remaking the case. It was not a fact that he made the defendant a temporary vulcanite set to use while he was altering the gold case. He made defendant this set because he said he could not exist without a set while the others were being altered. He did not believe defendant had ever had the last gold case he made in his mouth. Certainly he had never come to him with it. He seldom put people in the court and then only "chronics." He put Mrs. Groves in court, but on the advice of his solicitor he had withdrawn the case, and had paid £2 2s. to a professional witness who was to give evidence against him. Mrs. Groves was decidedly a "chronic."

After Mr. Wallis had addressed the Bench for the defence, he called

Mr. Jones, the defendant, who said he agreed with Mr. Roff King to make him a first rate set of artificial teeth, with which he could eat and masticate his food for £10. Mr. King said they would add ten years to his life. The teeth came, but did not fit at all, although he gave them a fair trial. He had to take the teeth out to talk. He saw Mr. Roff King, who took the teeth back with him to alter. They were returned, but he could not wear the case, and he went to Shrewsbury. Mr. King retained the gold case, and made him a vulcanite set as a substitute. He had the gold case back, but it did not fit. He had not lost three or four teeth after having the gold case. He was always willing to pay the price agreed upon if Mr. King made the gold case to fit. If the gold case had fitted, he should have returned the vulcanite one. He did not want both. He went to Mr. King on receiving the account for £11, but Mr. King took hold of his shoulder and pretty well pushed him out.

Mr. Granville Jones, dentist, of Shrewsbury, was called, and said the

gold plate produced could never be made to fit. He had come there to give evidence greatly against his wish, and upon a subpoena.

The Judge commented on the fact that the defendant had kept the gold case so long, and said he had decided to give a verdict for plaintiff for £8 10s.

Mr. Wallis suggested that the value of the case should be deducted. The charge for it was £5; they would accept £3.

Mr. Roff King said the old gold was worth 30s., he was willing to give that.

Mr. Willis: 30s. for an article for which you charged £5?

His Honour suggested that Mr. King should give £2, and this he agreed to do. The amount of the verdict was thereupon reduced to £6 10s.

IPSWICH COUNTY COURT.

Before His Honour Judge Eardley Wilmot.

CLAIM AGAINST A DENTIST.

Herbert Day, blacksmith, Providence Cottage, Wellington Street, and Bell Lane, Stoke, brought an action against Thomas Miller, dentist, Norwich Road, Ipswich, for £15.

The claim was in respect of medical attendance and loss of business consequent upon injuries received to plaintiff's tongue during the extraction of a tooth by defendant's assistant.

Mr. W. Marshall appeared for plaintiff, and Mr. Arthur S. Leighton (of Messrs. Leighton and Aldous) for defendant. A jury was empanelled to hear the case.

The plaintiff's story was that he visited Mr. Miller's on the 26th of November for the purpose of having a tooth drawn. Mr. Miller, jun., undertook to draw the tooth, and in doing so hurt his tongue, causing it to bleed freely. At the time witness told Mr. Miller that he had cut his tongue to pieces, but he replied that it was nothing. Some powder was placed on the wound, but it still continued bleeding, and he found the tongue was cut completely through. He visited the shop again, and saw both defendant and his son, and, in spite of more powder being placed in the mouth, it still bled. He subsequently saw Dr. G. Vincent, who plugged the wound and stayed the bleeding for a time. He was under Dr. Vincent's care for a fortnight, and a week after the hæmorrhage had stopped, the wound burst again. That resulted when he spoke for the first time. He could eat nothing but liquid food, and received instructions from the doctor not to talk. He was unable to pursue his business, and was obliged to pay another man named Edward Nichols 14s. a week, and his father an extra 10s. a week. He suffered much pain during the time he was under the doctor's treatment. In the early part of December he saw the defendant, who said he could not help little accidents of that character. Replying to Mr. Leighton, the plaintiff said Mr. Miller did not take the tooth out with the forceps, but with a penknife, after he was unsuccessful in getting it out with the forceps.

Dr. George Vincent said the tongue had evidently been transfixed by some instrument which had passed through the tongue. He was of opinion that a penknife was used to force the tooth, and it was shot

through the tongue. He was of opinion that the injury was caused through carelessness.

After some difficulty he stopped the hemorrhage, but it commenced again a week later. The plaintiff was unfit to go to work.

Mr. Leighton said the defendant had practised as a chemist and dentist in the town for many years, and had always given every care and attention to his patients. Mr. Miller was not doing the dental work when plaintiff called, and his son, who had assisted him for over 10 years, attended to the plaintiff. Day was in an excited and nervous state through long-standing toothache, and struggled when the tooth was being removed. The forceps was the only instrument used, and it was possible to have caused a wound of the character described by plaintiff. Mr. Miller's son would deny having used a penknife. No complaint of any character had been made against the defendant, and he (Mr. Leighton) suggested if any injury was done it was caused through the contributory negligence of the plaintiff.

Defendant's son, Mr. Edwin Frederick Miller, bore out the statement of his solicitor, and added that when he examined the tongue it was not perforated, and there was only a superficial scratch.

The Judge observed that defendant was bound to exercise reasonable care, but if the Jury considered it a pure accident the defendant was entitled to a verdict.

The Jury, after putting several questions to the doctor, adopted that course, and a verdict was entered for defendant.

UNREGISTERED DENTISTS IN COURT.

Before Judge Edge at Kingsbridge County Court, Wandsworth, Fowler and Co., described as dentists, carrying on business at George-street, Plymouth, brought an action against Annie Pearce to recover £3 3s., for stopping three teeth.

Defendant paid 11s. into Court, and Mr. W. Beer, solicitor, who appeared on her behalf, cross-examined the plaintiff as to his qualifications to describe himself as a dentist.

Plaintiff said his occupation was that of a dentist, and he had passed through the full curriculum as a medical student.

His Honour asked if he was registered.

Plaintiff said his practice was not only carried on by registered but by qualified men.

His Honour believed the dentists had a charter.

Mr. Beer: That is so. A person acting as a dentist cannot recover unless he is registered as a legally qualified dentist.

Mr. Beer to Plaintiff: Are you a registered dentist?

Plaintiff: I am a dentist. I am not a shoeblack.

Mr. Beer said an unqualified person practising as a dentist was liable to a penalty of £20.

Plaintiff: I am a full curriculum student.

His Honour, having referred to the Dentists' Act and to the dental register, said a medical man, no matter how high his qualification, could not recover his fees unless he was registered. It was the same with a dentist. There would be a verdict for defendant with costs.

On the application of Mr. Beer, his Honour directed that the 11s. which the defendant had paid into court before she instructed him should be refunded to her.

CLERKENWELL COUNTY COURT.

At the Clerkenwell County Court, before Judge Meadows-White, Messrs Treadway and Hoare, surgeon dentists, of 208, Goswell Road, sued Edward Thomas Baxter, of 39, Mildmay-park, Balls-pond, for £5 5s., professional attendance and materials supplied.

Mr. Adams appeared for the plaintiffs.

Plaintiffs' claim was principally for a set of false teeth supplied to the defendant in January of last year. The teeth were returned by the defendant, who complained that they were no use to him, as they did not fit. A letter was written to him, asking that he should call and see the plaintiffs, but he took no notice of it.

Defendant—I want the teeth. I can't eat. I can't masticate, and my speech is affected. The teeth supplied by the plaintiffs, however, were of no use. They did not fit, and slipped up and down in the mouth.

Mr. Hoare said that defendant's lower jaw protruded, and that made it very difficult to fit the teeth. Defendant, however, did not give the teeth a good trial, only wearing them a night before returning them.

Henry Albert Schaub, of Upper-street, having examined the teeth, said they were thoroughly well made.

The Judge suggested some compromise. The defendant had better try the teeth—which had been altered—again.

The parties retired from the Court, and subsequently returning, defendant said that the teeth had with some difficulty been fitted. They were far more comfortable than when he last tried them. (Laughter.)

The Judge—They look very well. (Laughter.) They are bound not to be very comfortable at first, but you must give them a fair trial. Unfortunately, I can speak from experience.

Judgment for plaintiffs, with costs.

ANSWER TO CORRESPONDENT.

Will "Denture," whose letter appeared in our issue of January 1st, kindly forward us his address, his card has been mislaid; there are two letters waiting for him.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
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MEANS TAKEN TO PREVENT SUBSEQUENT DEFORMITY AFTER EXCISION OF PORTIONS OF LOWER JAW.*

By A. PEARCE GOULD, M.S., F.R.C.S.

Mr. President and Gentlemen,—The subject I wish to bring before you this evening is one which I hope may interest you as dental surgeons, as it certainly ought, I think, to interest all general surgeons who are called upon to operate upon the jaws. It is of course a very simple truism that the surgery of the upper jaw differs in very material respects from the surgery of the lower jaw, and I think that in that fact we have one great justification for the modern phraseology which speaks of one as the maxilla and the other as the mandible. It seems to impress upon us that we are not speaking of two similar bones subject to identical diseases, and to be treated by identical means with identical results. It is to one of the striking differences in the surgery of the two bones that I wish to call your attention this evening.

As we all well know and so frequently see, the maxilla may be removed without leaving anything more than the most trifling external deformity, and the absence of teeth and the aperture in the hard palate are very successfully made good by the dental surgeon. But when we come to the surgery of the mandible we are met with an entirely different condition, and when from any circumstance the surgeon has

* Read before the Odontological Society of Great Britain.

to remove any portion of the whole depth of the mandible, that operation up to the present time or almost the present time, has been practically always followed by very grave external deformity, by a most serious defect in the function of the bone, interference with mastication and with nutrition, and very little effort has been made in this country by either dental surgeons or general surgeons to deal with this very serious matter. Some mention of this point is to be found in old books. Liston, for instance, referred to it. He had a splint made by a friend of his, which was adapted to the molar teeth of the upper jaw and of the lower jaw in such a way that when the central portion of the mandible was removed the lateral portions did not fall together and fall inwards into the middle line and assume a position in which they were entirely useless for mastication. Sir William Ferguson, who had a very large experience in this operation and all operations about the face—in fact, all surgical operations of that day—speaks in his “Operative Surgery” of the value of plugging the two portions of the divided jaw apart with pieces of lint. He does not give any very definite statement as to the results of that practice, and I think we may fairly assume that they were not strikingly successful.

In the year 1893 Mr. Stanley Boyd showed at the Clinical Society of London, a patient from whom he had removed the central portion of the mandible and the tissues of a part of the mouth and the anterior part of the tongue for cancerous disease, and he had placed a curved piece of silver wire, fixing each end into the ends of the mandible, to hold them apart in their proper position. The wire was imbedded in the scar tissue, and when the case was shown some months afterwards the result was excellent. Last year Sir William Stokes published a paper in the July number of the *Practitioner* in which he drew attention to this subject, and referred particularly to the importance of it

and to the small notice that it had attracted at the hands of surgeons, and he figured a splint which he had had made in Dublin, and had used on one occasion. I have brought the number of the *Practitioner* with me, thinking that it may be more useful to show the splint and to show his drawing than to give any description of it. It is made of tinned iron wire, No. 15 gauge, and consists of what he speaks of as two crutches of wire held together on one curved central stem; each portion of the divided mandible is fitted into one of these crutches, and the curved central stem holds them apart in their proper situation. In the case in which he used it he said he obtained considerable success. He used it, however, in a particular way. He operated on the 7th of a given month, left it *in situ* for thirteen days only, and then divided the central stem, removed each of these crutches, and replaced them at once by a denture which had been prepared by a dental surgeon in Dublin. He states that the patient left the hospital with an excellent result, but he does not state that he had seen that patient any length of time afterwards. I believe this is a tolerably fair statement of the amount of attention that has been paid in this country to this subject, which really is one of very great importance.

Within the last two years I have had three cases in which it has been necessary to remove portions of the mandible, and in which I have attempted to hold aside the main portions of the bone in their proper position and prevent deformity, and obtain a useful mandible for mastication. I will content myself now with relating very briefly indeed those three cases, particularly in reference to this point, and telling you the result I have met with.

I should preface what I have to say with the remark that I have not come here to-night to make known to you any new discovery or practice, or to make known to you any striking success that I have obtained in this department: far from it;

but I have come chiefly with the object of trying to solicit your practical interest in this very practical and important subject, feeling sure that the particular studies in which you are engaged and the particular interests that you have will enable you to render very great and special services to us general surgeons in this matter.

The first patient I had was a man aged 52, who came to me in the year 1895 with epithelioma of the tongue and floor of the mouth, which I removed by operation. Subsequently there was recurrence on the inner side of the mandible, and I removed at a second operation a considerable portion of the left half of the body of that bone. In that case I followed the practice of Mr. Stanley Boyd. I took a piece of stout silver wire and fixed the ends in small holes drilled in the extremities of the bone. So long as the man remained in the hospital the result was all one could wish. I sent him away to a convalescent home without deformity, and in this respect in an excellent condition. Unfortunately one day at the convalescent home something or other went wrong, and one end of the wire appeared through a little hole in his cheek, and he returned at the end of three weeks with the silver wire in his waistcoat pocket, and offered it to me. That case was not successful.

The second case was that of a lady who came to me last July with an epitheliomatous growth in the gum and the right side of the mandible, involving partly the cheek, and in that case I removed about two and a half inches of the right side of the body of the mandible. I used then a steel bar with a screw at each end, the screws being reversed. There was a right hand screw at one end, and a left hand screw at the other. By that means I was enabled to fix this rod more firmly in the bone than I had been able to do in the first case with my piece of silver wire, and by turning the rod round in the forceps it screwed itself into each portion of the man-

dible. The skin was in contact with it on one side and the mucous membrane on the other, and I stitched them together over this steel rod. The stitches did not all hold in the mouth, some of them gave way, but I found that that caused little or no trouble. The whole wound healed up well. I saw the lady this morning and she has very little deformity indeed. Her chin is in exactly the middle line. She has, of course, a certain amount of depression, and there is the external scar of the operation ; but the whole mandible moves in one piece, and she can open her mouth well. She manages soft food, minced meat, and so on, without any difficulty at all, and she is very pleased indeed with the result. She is now going to her dentist to have artificial teeth fitted in. I should say she was entirely edentulous. For some weeks after the operation she had a good deal of irritation about the ends of the mandible, the parts were swollen, and there was pain and a good deal of tenderness ; but with patience and the application of hot fomentations at times when the pain was very troublesome, this was got over. At one time, too, I gave her some iodide of potassium. Those symptoms of irritation have all subsided. There is now practically no tenderness left and no enlargement of the bone, and I think that case may be spoken of as satisfactory.

The third case is one which is in the Middlesex Hospital at the present time and is not a success. It is that of a man who had a very early epithelioma of the fraenum, which was removed by the late Mr. Hulke in the year 1895. Twelve months after it recurred, and many months after the recurrence first appeared—ten months—he again presented himself at the hospital for treatment. He had then a very considerable epitheliomatous growth, involving the floor of the mouth, adhering to the back of the symphysis, and infiltrating the tongue far back, and there were secondary growths in the submental glands. The operation I did was to make a median

vertical incision in the middle line of the lip, through the chin, down to the hyoid bone. The tissues of the lip and the superficial tissues of the neck were turned back. The canine teeth on each side were then extracted and the jaw was sawn across. I then got a good hold of the tongue by a traction ligature passed through it, and separated the muscles far back, and removed the tongue in front of the epiglottis, tying the lingual arteries as each one was exposed. In this case I attempted to use the steel bar with the reverse screws at the ends, and I thought at the time of the operation that it was going to succeed in this case as it had in the case I have just related to you. Each end seemed to be firmly fixed in the mandible; the parts of the lower jaw were exactly beneath the corresponding parts of the upper jaw; and when I closed my incision there was very little deformity indeed. For several days after the operation all seemed to be well; then the right end of the rod was found to have slipped from the right side of the mandible. I could not screw it through the mouth, but I replaced it, hoping that it would become firm. A few days after that I found that the left end had got into the cancellous tissue of the mandible, and had slipped right in. So firm had been the pressure of the muscles, the pterygoids, chiefly, drawing these two portions of the mandible together, that the screwed left end had been forced right through the cancellous tissue, and nearly all my bar had disappeared in the left half of the mandible. I took it out, and have had to desist from my present attempt to correct this man's deformity, and at the present moment, I am sorry to say, he exhibits the deformity caused by the removal of the central portion of the mandible to a very full extent. The wound is healing up and doing well in that respect, but he cannot masticate.

That is my experience. I have tried three cases: I have had two failures, and I have had one case which I think may be called a success. I think these cases may be taken as

fairly representing the problems which are presented. In some cases it is the lateral portion of the mandible that has to be removed; in other cases, perhaps more frequently, it is the central portion of the mandible that has to be removed. I have had two lateral and one central, and it happens that the laterals have been one right and one left, although there is not much in that. What we want is some apparatus which will hold the two fragments apart, will resist this firm pull of the pterygoid muscles, and the strong pressure that will tend to drag these two portions together. We want something rigid enough to prevent that, and to hold the bones exactly in their normal position, so that the teeth shall be really opposite the teeth of the maxilla, and useful for mastication. We want something, also, that can be readily adjusted. It is not always possible to say before an operation exactly what length of bone may have to be removed. One might have to remove half an inch of bone more than one thinks at first, and we want something that can be adapted somewhat easily and quickly to the different cases. Whether the silver wire is the true solution, or the steel bar with the screws that I have used twice, or an ivory splint, or anything like a solid wedge of lead, or anything of that kind, or whether it should be the inter-dental splint that Liston used, I am not at all prepared to say; and I should be exceedingly glad to have suggestions thrown out to-night, and any help that can be given in this very important branch of surgery. The cases in which portions of the mandible have to be removed for malignant disease are by no means few.

FALSE TEETH AND THE X RAYS.

The Rontgen rays have been found of the greatest utility at Bristol University College, where a patient has been relieved of a conviction that he had swallowed his false teeth. The rays showed that he had no such thing inside him, and he departed happy in the knowledge that he had merely mislaid his teeth.

ARTIFICIAL DENTURES.

By HARRY ROSE, L.D.S. Eng.

(Continued from page III.)

PREPARATION OF THE MOUTH.

When a patient seeks our aid for artificial teeth, our first duty is to examine the mouth and give a candid and honest opinion as to its condition, also to point out and explain the necessity for the various operations to be undergone, and the amount of discomfort likely to attend the same.

We must in a word, educate our patients in dentistry, and let them clearly understand what we intend doing ; it gives them not only a higher appreciation of the difficulties of our work, but it establishes their confidence in the dentist, and in the efforts he is making for their comfort. If this is done in a proper spirit, and conveyed to the patient's mind in a proper manner, there can be, I think, no ethical objection taken.

Prior to any operation it may be necessary in some cases to take an impression of those teeth remaining in situ, in order to give us a correct idea of their shape, length and position, so that in the construction of our artificial denture we may make the teeth conform to the original natural organs we intend removing. The temporary impressions, may be taken in beeswax, that being the least objectionable material used for this purpose, and will give a sufficiently good cast for our guidance.

Having obtained the temporary impressions, the next care must be the removal of roots and useless teeth, and one of the greatest difficulties one has to encounter in private practice is that of inducing patients to submit to this preliminary.

If the operation is to be performed under gas, I strongly advise the extraction of the most difficult and painful first, as it frequently happens that the patient will submit to the extraction of the least painful without gas, besides one is then in a position to assure him that the worst is over. On the other hand if the operation is to be performed without the aid of an anæsthetic, then I would advise the removal of the least important roots at the back of the mouth, for I find as a rule, patients begin to screw up their courage on finding it not nearly so bad as they imagined, and if the latter part of the operation is more than they can bear, they are more easily persuaded to have gas; or if they still object to that, it is better the roots should be left in the front of the mouth than at the back, those not being subject to such rapid disintegration and decay, and are at the same time more easy and reliable to fill, and can at any rate be made somewhat presentable.

After allowing the patient a few days' rest, any teeth that may require it, should be filled, and all traces of tartar removed.

The patient should be instructed to gargle the mouth with some astringent, such as tannin or myrrh, using for the first few days a weak solution of permanganate of potash as well, in order to cleanse and disinfect the cavities left by the removal of the roots and teeth, as they are apt to become filled with particles of food and broken down tissues, and rendered offensive, so retarding the healing process.

It often becomes a difficult problem to solve, which teeth to remove and which to retain, and I am afraid one cannot make any hard and fast rule, for it is necessary to take into consideration the character of teeth, the age of the patient and also whether those teeth one wishes to retain will last an appreciable time.

When one has an aged patient to treat, it may be wise to

preserve as many teeth as possible, in order that he may not suffer more inconvenience than is absolutely necessary, and also to aid in the retention of the work.

On the other hand if the patient is young, and the remaining teeth are of a frail chalky character, and not likely to have a long existence, it would be the wisest and best course and more conducive to the future well-being of the patient to extract all the teeth and get the mouth into a thoroughly sound and healthy condition.

Speaking from actual personal experience, I would emphasize the fact that next to having a good natural set of one's own with which to perform nature's offices, the next best thing for our economy is a perfect artificial denture ; none but wearers can appreciate the advantages resulting therefrom.

Loose teeth are of no use to us for the purposes of fastenings or clasps, and the result of their condition causes a certain amount of irritation and swelling of the adjacent mucous membrane, and is detrimental to the fit of the case.

The same objection holds good with regard to roots being covered over by the plate ; they are generally the exciting cause of local disturbance, and if they are not filled, their presence is indicated by the foul and foetid breath of the patient.

If a rule could be made, I would counsel in every case the removal of roots, unless they were of an unexceptionally healthy and reliable character, or could be rendered so by conservative treatment such as capping and crowning so as to assist materially in the retention of a denture.

Now as this treatment of roots involves a considerable expenditure of time, skill, and patience, on the part of the dentist, it should also command an adequate recompense from the patient. Therefore, to prevent any misunderstanding with respect to fees, a perfectly honest and straightforward

statement of what is to be done should be submitted to him, so that in the event of his not being willing, or able, to afford such an expensive operation, he can by having the roots removed, and allowing the mouth time to heal, have an equally reliable, but less costly denture.

But where one finds one sensible patient, one meets with fifty who seem to know more about dentistry than the dentist, and strongly object to such removal, at the same time mentioning various friends who have had cases made without any interference with the roots.

The only course that is left open is to throw all the blame of bad after-consequences upon their shoulders, and if one has occasion to leave roots in the mouth, one must do his best by filing them level with the gums, and filling the canals in them with oxy-phosphate or gutta-percha to avoid at least some of the evils of their retention.

All good strong teeth likely to aid in the retention of the case should of course be preserved. A solitary tooth especially in the upper jaw is best away, but in the lower it may be useful in opposing the denture in its tendency to slip forwards. Teeth that have lost their antagonists and risen from their sockets should be extracted ; they can fulfil no useful purpose, and only render unsightly an otherwise pretty and artistic case.

It is a question often asked, how long should the gums be allowed to absorb and harden after the removal of teeth. One response can be made that it all depends upon the severity of the operation and may be reckoned from three weeks to six months or even longer ; it all depends whether a temporary or permanent case is contemplated.

I do not think the dentist is justified in allowing his patient to remain for even a period of three months after unfurnishing his mouth without furnishing it again ; he loses to a great extent the original facial expression, and it takes a much

longer time to become accustomed to the feel of the denture than if it were inserted as quickly after the extraction of the teeth as possible, setting aside the inconvenience and impairment to health through being deprived of his dental armature.

As a rule I give the mouth about six weeks after the extraction of the teeth, at the same time advising the patient to gargle the mouth five or six times a day with a strong solution of tannin.

If the patient cannot remain so long without his teeth, I advise him to have a temporary set, which is inserted a few days after the operation to be worn until the mouth is in a fit condition for the permanent case.

This procedure possesses many advantages, in fact it puts the mouth into training, as it were, for the future set. The presence of the case is not noticed so much when it is inserted immediately after the removal of the natural organs; again the patient does not expect so much from them, and will afterwards more fully appreciate the artistic and better fitting case that is in store for him.

Now, while one is preparing a patient's mouth for teeth; notice must be taken of the general expression of the face and of any peculiarity in the position of the natural teeth and their size.

It is a good plan if one has to extract a front tooth, to save it for reference as to size and colour, and for the latter purpose it should be kept in water.

One must note the colour of the teeth, for it would mar the effect of the best piece of work, if a brownish tooth were used when it ought to be a gray or blue. Nor must we make the mistake of placing in the mouths of elderly people the light shades incidental to youth. I would mention in choosing teeth that it is preferable for them to be slightly darker than lighter in colour; they do not look so conspicuous. Artificial

teeth always appear darker in the hand than they do in the mouth. .

One must also notice the closure of the jaws, what is commonly called the "bite," and thus form an opinion as to the most suitable material for the case.

It is as well in all cases not to give an opinion hurriedly, one may have occasion to alter it when the models are taken and examined; when in doubt one may say that the case requires a little consideration before finally deciding, and one must be guided by the models and the articulation, before arriving at a definite conclusion.

The following are some of the points to be considered.

The utility of the teeth to be preserved to aid in the retention of the case. The position of decayed teeth and healthy roots that may be crowned, forming attachments for clasps the same as the natural ones.

In a case where the six front upper teeth are in position close together, and no others posterior to them on either side, a difficulty will sometimes arise in supporting the artificial denture, especially if the patient insists on having a narrow plate, at the same time objecting to the clasps showing somewhat in front of canines.

If these two objections cannot be overcome, the dentist will have to safeguard himself if the patient has a lower case as well, by attaching swivels to the case to carry springs, failing that, he runs the risk of the case not answering.

The same difficulty is also apparent in lower cases where the six front teeth are short, the objections on the patient's part being the same as in the case of the upper jaw.

In the lower one can of course load the case, but even then the patient may complain of the weight tiring the jaw.

The patient also, if it is possible, soon acquires the bad habit of moving the case about with the tongue, and comes back discontented.

These difficulties are mentioned more especially to guide the young dentist in discriminating between different modes of procedure, the necessities that each case demands, and which should be conveyed to the patient's mind at the time of undertaking the case.

Another example may be found in a case in which the size of the plate creates nausea and the reduction of the same means most probably destruction of its power of suction.

It is also of considerable importance to the dentist both pecuniarily and mentally as to whether he should undertake the responsibility of making suction work for doubtful cases ; if he does, he should be able to command a much higher fee, for not only has he to make a more perfect denture in every respect, but he has also to assume the responsibility of the wearer giving that amount of patience and encouragement, so to speak, to the case that will ultimately lead to his getting thoroughly accustomed to it, for more often than not the dentist's real troubles commence only after the completion of the cases, for he then has the much harder task of encouraging his patient, failing which his reputation is likely to suffer.

Therefore to avoid a few of the pitfalls into which the unwary beginner may be innocently led, in his efforts to secure the comfort of those committed to his care, it is as well when any doubt exists, owing either to the condition of the mouth or the inability of the patient to exercise the necessary amount of patience, to mount a set of swivels on the case.

If the patient can get along without springs so much the better, the swivels can be removed, on the contrary if they are required, springs may be attached and the trouble ceases.

As a rule the retention and steadying of the lower denture is the principal trouble to overcome, and unless that case be worn of a proper size, it will not remain stationary or be comfortable.

Another example of showing the value of taking precaution will be found in the following case.

Miss W. had a very short upper lip and showed all her front teeth as well as a considerable amount of gum. There was not sufficient depth for gum sections and the presence of vulcanite would have been objectionable, so the front artificial teeth had to be fitted on the gum. No work looks better than this, provided the teeth fit with a slight pressure on the natural gum, making them appear as if springing from it. This effect can be brought about by slightly scraping the plaster model when the teeth are being fitted.

Now although looking so natural, the break in the contour of the gum destroying as it does, the cup-shape of the piece, in the majority of cases, has the effect of impairing its proper adhesion to the roof of the mouth.

Had I not taken the trouble to fix swivels, I should have had to remake the case and incur fresh trouble and expense.

Now as these precautions are found necessary when using a plastic material like rubber vulcanized on the original model of the mouth, it does not require a great effort of the imagination to understand that they are still more necessary when either gold or other plate has to be used.

A trial of patience will be saved by mentioning to the patient before commencing the case, that a doubt exists, and extra precautions must be taken with his or her case.

When a patient has been furnished with a denture, it should be brought home to him that there are certain hygienic principles necessary for him to observe, not only as to the desirability of keeping the case clean and wholesome, but also to assist materially in preserving the remaining natural teeth.

The patient should be instructed to remove the case at night, placing it in a tumbler of water with a small piece of ordinary common washing soda, this will dissolve all secre-

tions from the surface, and when the further rubbing of the case with a tooth brush and soap takes place in the morning, the denture can be made absolutely clean.

The danger in wearing artificial teeth consists in the bringing of the thickened secretions of the oral cavity, and particles of decomposing food into intimate contact with the remaining natural teeth, and it is only by absolute cleanliness in the manner mentioned, that it is possible to avoid it, for no matter how much the case is brushed in the ordinary way, one has only to place it in a basin and pour boiling water on it to see at once that the surface is still covered with a tenaceous white deposit.

The selection of roots for crowning, to form supports for artificial teeth requires the dentist's soundest judgment and discrimination.

Only those that are firm and free from disease should be saved, and they should be brought into the healthiest possible condition to prevent the occurrence of disease in the future.

Before making the case the roots should be tested for a short time to demonstrate their fitness and reliability for the purpose intended.

By testing, I mean that they should be trimmed again to the required shape, the canals should be cleaned out, and made perfectly antiseptic, and sealed up thoroughly. If they remain in a perfectly quiet condition, in a week one may venture to the crowning process.

The most important object one has in view in the conservation of roots is to enable one to reduce the denture to its smallest dimensions so as not to fill up the mouth—more than is absolutely necessary. One should not however, by such reduction take away the support it ought to afford to the teeth to enable mastication to be performed in an efficient manner.

On examining the teeth in a well formed mouth, one finds

that each individual tooth comes into close antagonism with its opponents, and that the necessary amount of pressure to insure perfect mastication can be given and borne at any part of that double row of teeth.

To resist the real strain they are subjected to, without injury, one finds they are fixed in bony sockets lined with the alveolar dental periosteum; this, and the peculiar form of the sockets act the part of buffers and resist and break the shock of the forcible closure of the teeth, during the process of mastication. The result is that each tooth having such support can perform its allotted task in an efficient manner.

In ordinary dental plates the strain of mastication is borne by the denture resting on the alveolar ridges and gums, covering them and forming a bearing surface, and one finds that a plate so made allows pressure to take place on every part of the arch the same as with one's own natural teeth.

In finer bridge work, illustrated by many examples in Dr. Evans's book, the pressure of mastication must be borne by the unfortunate teeth that form the supports, and it would be most interesting to know how many of the cases which one must presume were placed in the mouths of patients, survived a twelvemonth's wear.

In four-fifths of the cases represented in that work, the conditions were such that a narrow gold plate could have been easily adapted, one that could be removed and thoroughly cleaned and give satisfactory results if the pressure of mastication was applied to any portion of the work. And if the teeth or roots to form its supports, were treated in the same manner as for bridgework, that is by crowning where necessary, one could put the patient in the possession of a masticating apparatus that would admit of no doubt as to its efficiency and durability.

British Journal of Dental Science.

LONDON, FEB. 15, 1897.

CASES IN THE COURTS.

The number of legal cases concerning our profession has been lately—äs will be seen by those who read our last issue—very large and very interesting. They form themselves into three heads : firstly, cases in which the work done has been considered unsatisfactory and the patient has contested the charge ; secondly, cases in which the patient has claimed damages for injuries caused by negligence, and thirdly, cases brought by dentists against those who were practising dentistry not being upon the Register.

The first type of case we have always with us in the County Courts, and we may safely say that as a rule it is won or lost on its merits. If the jury is persuaded that the patient has had reasonable care and skill bestowed upon him and that the fee charged is fair, the dentist wins his case. If on the other hand high fees and unsatisfactory work go hand in hand, the patient will find that the law will protect him if invoked, and a compromise is the usual result. Of the second type of case we published an important instance, in which a gentleman claimed damages from an "Institute" for the negligence of one of their operators in attending upon him and putting in certain artificial teeth. The defendants denied any negligence, but the jury found a verdict for the plaintiff, who was awarded one hundred and fifty pounds damages and costs. An interesting feature of the case to us, however, is that neither the man who put in the original unsatisfactory teeth, nor the man who afterwards made the plaintiff comfortable, are on the Dentists' Register. We consider that the conduct of the "Doctor" and of the "Institute" for which he worked, is in no way outside the

scope of the Dentists' Act, on the score of the said Institute being a Limited Company. We maintain that the registered men who form this Company are "covering" every unregistered practitioner in their employ. The late ruling of Mr. Justice Vaughan Williams seems (as far as purely commercial affairs go) to make a "one man Company" a separate entity, and outside the pale of the law relating to individuals. But we doubt if this would be maintained when applied to a learned profession having the health and safety of the public in its hands and charged with restrictions and corresponding privileges. We are of opinion that the Dentists' Act is quite sufficient for our purpose to bring those gentry to book. We consider that their conduct as individuals is disgraceful in a professional respect, and we have no hesitation in saying that the General Medical Council should remove their names from the Dentists' Register. We hear a great deal about amendments being wanted to the present "Company law;" we are also waiting for the time when the "Medical Acts Amendment Bill" will become incorporated in our Statute Book, but in the meantime we have a Dentists' Act, the scope and extent of which has never yet been fully proved. This we do know, viz., that in every individual case in which it has been applied with proper precautions, and in the hands of able counsel versed in the Act, the prosecution has been victorious. This brings us to the third part of our subject namely, the recent prosecutions in Brighton.

These prosecutions were instituted against several unregistered practitioners practising dentistry, and no difficulty ought to have been experienced in securing a conviction in each case. Unfortunately this was not so, and several of the cases were dismissed or adjourned. Other summonses have more recently failed at Swansea. Every failure of this sort does far more harm than a number of successful cases does good, and we hope some of these decisions will be made the subject of appeal. We shall not rest satisfied until not only the unregistered man who "calls" himself a dentist, but also every one who "holds himself out" in any way to be specially

qualified, and deceives "the wayfaring man though a fool," shall be made to feel the penalty for his deception. We hope that this crusade of the Brighton Dentists will not be without fruit if it stimulates us to increased vigilance, loyalty to each other and a determination to carry out the provisions of our Act to the utmost. Last, but not least, let the failures which have marred the attempt teach us that before taking up any such prosecutions we must have no flaw in the indictment, and that the Counsel employed be an expert in the Dentists' Act.

CONTOURING A NOSE WITH CELLULOID.—At the Liverpool Medical Institution, Mr. Thelwall Thomas exhibited a patient, fifteen years of age, whose nasal bones had disappeared in childhood from congenital syphilis, leaving the flat deformed appearance known as "saddle nose." Mr. Thomas modelled a piece of celluloid into the form of nasal bones, strengthened by a keel-shaped piece on the inner surface. This keel fitted between the nasal processes of the superior maxillæ and the lateral portions rested on the processes. The operation consisted in making an incision on the left side of the nose, inserting the celluloid subcutaneously into position and closing the incision by means of horsehair sutures. The operation was performed seven months ago and appeared to cause no irritation, while the personal appearance of the patient was remarkably improved. Mr. Thomas claims that this proceeding has many advantages over the many osteo-periosteal flap methods, all of which leave marked cicatrices.

MASTICATION.—Dr. Taft draws attention to the faulty way in which the process of mastication is often performed, and thinks that dentists do not sufficiently instruct their patients as to the importance of this function. He affirms that "those persons who masticate their food most thoroughly have the best teeth." We think that he would have been nearer the mark if he had said that persons who have the

best teeth masticate their food the most thoroughly. Faulty mastication undoubtedly arises most frequently from pain or fear of pain. Persons who have a decayed tooth form the habit of biting softly, and this habit, like other bad ones, may be retained. Artificial teeth, too, however well fitted, cannot bear the same pressure that sound natural ones do, as the weight is borne by a soft and sensitive tissue—the gum. We should impress upon our patients, especially those wearing artificial dentures, the importance of thorough mastication and insalivation. Mr. Gladstone has expressed his opinion on this as on many other subjects, though we think that his dictum of thirty-six bites to each piece of meat errs on the side of under, rather than over-mastication.

THE TEETH OF DOGS.—The effect of artificial modes of life seems to affect our canine friends in very much the same manner as it does ourselves. A correspondent in a contemporary remarks that at dog-shows one is often struck at the truly awful condition of the mouths of some of the animals otherwise passable. He is of opinion that judges should take more often into consideration the state of a dog's mouth in adjudicating awards, as it is a point often passed over without notice.

PHONETIC SPELLING—A new dental publication in America namely, *Welch's Monthly*, seems to make a feature of printing its articles and editorials in spelling which would delight the heart of every schoolboy. Every one seems to be a law unto himself in the matter, and the result is a go-as-you-please jumble which offends equally the eye and the understanding. The phonetic way may be easier to write (for some people) but it certainly is not easy to read. Furthermore a word that has gradually evolved—that has travelled from the far East through Greece, Rome, and France, or has come to us from Scandinavia or Germany, and has become incorporated into some of the grandest literature the world has ever seen or

shall see—a word, we say, like this is entitled to respect, nay more, to love and reverence. We trust our contemporary will improve its pages (and probably its circulation) by discarding this unlovely unscientific mode.

DOES NITRATE OF SILVER PENETRATE DENTINE?—There has lately been a battle royal between Drs. Truman and Harlan concerning the discolouration of dentine by silver nitrate. Dr. Truman affirms that by means of cataphoresis it is possible to carry nitrate of silver into the dentine almost up to the cementum, and can substantiate what he says by aid of the microscope. Dr. Harlan on the contrary states that from a somewhat extended experience in experimenting with teeth planted in plaster of Paris, and paraffin and wax, and from some practical experience with teeth implanted in jaws, that solutions of silver nitrate do not penetrate the dentine enough to cause discolouration such as to be a disfigurement. He says that the silver nitrate cannot reach near the cementum because under the action of the electric current the silver salt is decomposed into the oxide and this becomes deposited so thickly that it prevents further discolouration. We think that a discussion of this sort is very little short of useless unless the experiments are carried on under somewhat similar conditions. We cannot expect that any number of teeth experimented upon in plaster of Paris can be as satisfactory as a few tested *in situ*. Let these gentlemen, instead of wrangling and reducing the argument to a “question of veracity,” agree to conduct a certain number of experiments under as similar conditions as possible, compare notes and shake hands.

FIGHTING THE DENTISTS.—*The Dental Review* remarks, “The chemists and druggists are banding together in Great Britain to test their right to extract teeth and do other dental work for the dear people. A few barbers extract teeth

in England also. Why not have them help in this praiseworthy (!) undertaking?" Why not indeed? They have a better claim to a hearing, as not so very long ago the craft was almost entirely in the hands of the barber-surgeons. But the world has moved since then, and specialism and examinations have come to the front. We are afraid that even the help of the barbers would not gain the chemists their case, however!

MADE IN GERMANY.—The *German Pharmaceutical Journal* estimates that 117 new drugs have been brought on the market during the second half year of 1896. The wonder is that any one is ill. Germany is far ahead of us in scientific chemistry; the British manufacturing chemist being content in too many cases to employ unscientific assistance, while their German rivals find it to their advantage to employ chemists to devote all their energies to original research. We hope that the magnificent laboratory lately erected by Dr. Mond in London, will go far to remove this apathy.

TUMOURS OF THE SUPERIOR MAXILLARY.

These growths are often very insidious in onset, and may be far advanced before the patient is aware of their presence. They commonly commence in cavities quite inaccessible to exploration, and are only manifest when they begin to encroach on the skin or mucous membrane. In all cases in which a deep-seated tumour of the superior maxillary is suspected, the nasal passages, the vault of the palate, the pharynx and post-nasal space alike should be carefully explored. When the configuration has altered and the osseous walls impinge by the use of the needle, it will be found that the bone has become more vascular and is much more friable than normal. From the prognostic point of view, sarcomata with small cells are the most malignant; those with intermediate, hyaline substance are less so; the fibro-sarcoma with giant cells the least. The endotheliomata progress slowly and often undergo cystic changes, and are but slightly malignant. Epitheliomata here are no less malignant than sarcoma.

M. Hammer, in Gazette Hebdomadaire de Medecine et de Chirurgie.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, January 11, 1897, Mr. Robert H. Woodhouse, M.R.C.S., L.S.A., L.D.S. Eng., President, in the chair.

The SECRETARY read the minutes of the previous meeting, which were confirmed.

The LIBRARIAN (Mr. W. A. Maggs) reported that Mr. C. W. Glassington had kindly presented to the Library his work on "Dental Materia Medica, Pharmacology and Therapeutics." The Librarian also reported that he had received in exchange the *Transactions of the Medical Society*, 1896, and that the book presented by Mr. David Hepburn, containing autograph letters concerning the foundation of the Odontological Society, had been rebound, with a suitable inscription, and placed in the Library.

The CURATOR (Mr. Storer Bennett) reported that Mr. Robbins had presented to the Museum a bone piece for the lower jaw, with a partial set of natural teeth inserted. The case showed no sign whatever of decay, which is somewhat unusual, and Mr. Robbins knew as a matter of fact, that it had been worn in the mouth for some time.

Mr. Bennet took the opportunity of appealing to any members of the Society who possessed such plates to present them to the Museum before they became destroyed or lost, as to such a collection as that of the Society they were exceedingly valuable.

The following were proposed as Members of the Society :—
As resident members :—Kenneth Weldon Goadby, L.D.S. Eng., 6 Holly Villas, Holly Road, Leytonstone; Henry Wood, L.D.S.I., 196, Selhurst Road, South Norwood. As a non-resident member :—John Brodribb Parfitt, L.R.C.P. Lond., M.R.C.S., L.D.S. Eng., College Road, Reading.

CASUAL COMMUNICATIONS.

Mr. Albert: Two cases of transplantation, with a third case of transplantation of a root, subsequently crowned.

(1) A superior left lateral transplanted over a twelve-month ago. From the time of insertion scarcely a moment's pain was felt. The tooth after the operation was as firmly

fixed as at the present time. The girl is able to use the tooth for the ordinary purposes of mastication, and has purposely tested its strength by biting cotton and other hard substances. It is curious to note how the tooth has approximated the others in appearance.

(2) The patient was in delicate health at the time. The tooth, a superior right lateral, was firmly fixed at the time of operation, but during the lapse of a few days, obvious signs of periosteal troubles developed, followed by suppuration, and œdema of the lower eyelid. The tooth soon became very loose and I was in favour of its immediate extraction but was over-ruled. The patient was fed on tonics and attention paid to the general health. After a few weeks it was found to be getting firmer, the periosteal troubles disappeared, and when I saw her last, some twelve months after the operation, I was able to round off with a coarse corundum disc, without supporting the tooth with my finger, the sharp mesial angle, for owing to the scarcity of teeth a wrong-sided lateral had been used.

(3) A girl for whom I was asked to transplant two superior central incisors, but having no suitable teeth at hand I cut off the roots of two that had been extracted some time, and determined to insert them with a view to crowning at a subsequent date. One root did not fit very well and came out a week after. The other remained firm, and with the exception of slight pain during the first few days, relieved by the local application of a ten per cent solution of cocaine, no untoward symptom occurred, and it was crowned after a period of four months.

How long these teeth will last it is impossible to say, but they present, so far, an appearance of remaining for years.

The operation of transplantation, although, I believe, performed first by Albucassis in the twelfth century, has not so far commended itself to the majority of dentists. I have however, been so fortunate in my results, mainly I think by discarding the use of ligatures or splints, that I am not without hope the procedure may be revised. I have had about ten cases—all, so far as I know, entirely successful.

My method of procedure is this. First select a tooth of suitable colour and shape, with a root slightly wider than the one to be removed. I have used teeth taken from living people, from dried skulls, and from the dissecting room, there being, apparently, only one essential—complete sterilisation. The tooth is scraped and so denuded of its periosteum at the

same time any deposits on the neck and crown are removed. The apex is then cut off and an antiseptic solution injected into the pulp chamber, after emptying it of its contents. Next the root is filled. I have used gutta percha, wood, oxyphosphate and Sullivan's amalgam with equal success. After this the tooth is immersed in an antiseptic till ready for use. At the operation the patient's mouth is washed with carbolic or Condy's fluid and gas administered. The tooth to be removed is grasped at its neck with clean forceps, no upward force being used, and in its extraction as much rotation as possible is employed in order to avoid deflecting the alveolus. The socket is then washed with an antiseptic and the tooth to be transplanted pushed forcibly into the place, or driven home, if necessary, with a hammer. If enough of the root has been excised it will be found that the force used in inserting the tooth will have caused a white appearance of the gum in front from the pressure emptying the blood-vessels. I have met this sign in every instance coming to a successful issue and regard it as a valuable and favourable prognostic indication. In all my cases the tooth after the operation was perfectly tight. Care must be taken that the bite is clear.

The one point I would lay stress on is the avoidance of ligatures and splints. These, I believe, even with the most stringent precautions, become mere traps for bacteria, and so inevitably lead to periosteal trouble. The only two failures I have had are the one mentioned in which an improperly fitting root was used, and the other, my first case, in which a splint was adopted.

Mr. BALDWIN asked Mr. Albert if in both the cases he used dead teeth and quite denuded of their periosteum. He (Mr. Baldwin) had done several cases of transplantation, but he had always endeavoured to get perfectly or nearly fresh teeth. If the tooth had not been perfectly fresh he had kept it in a very weak antiseptic solution with the idea of keeping the periosteum and the cells of the cementum alive. It seemed to be an important point whether the teeth should be fresh teeth with the periosteum perfect, or dead teeth such as Mr. Albert had referred to.

Mr. F. J. BENNETT said it seemed to him that Mr. Albert's remarkable success might be due to the happy idea he suggested of having the root of the tooth larger than the cavity, and driving the tooth home, if necessary by force, so that it was held firmly. It might be regarded as something analogous to a fracture with impaction. The parts were held

together during the early stages, and that was extremely important. It was during the first forty-eight hours perhaps that any movement of the tooth was likely to cause its being thrown off, and if it could be held in position until plastic inflammation was set up he thought that ought to explain why Mr. Albert had had so many successes when others had had so many failures. It might perhaps be compared to a foreign body being driven into a bone, as in the case of a bullet, and remaining there for an indefinite period of time. It did not follow, although the tooth might be driven in with force and impacted into the alveolus, that it would remain in that state of tension afterwards. There was little doubt but that there must be some small absorption round about the socket going on until the parts fitted easily and comfortably together. He considered that all those who would follow Mr. Albert's practice would do well to take a root which was larger than the cavity, and drive it home forcibly. Certainly if they were able in that way to do without splints or supports they would get the mouth into a much more antiseptic condition, and in that way also have a better chance of success.

Mr. NEWLAND-PEDLEY considered the operation to be wholly unscientific. It had been said that it did not matter whether a tooth was dead or alive or anything of the kind; it would do just as well. He did not think that was true. He thought if it were made out of wood it would stay there for a time if it were knocked in hard enough. What had become of most of the teeth that had been implanted?—for Mr. Albert's were not cases of transplantation but of implantation. If a living tooth were put in there was some chance of it obtaining vascular connection with the alveolus. After the force of impaction was over the roots became absorbed and calcification set in, and there was a kind of spurious ankylosis, but that in nearly all cases was merely temporary. Of the cases implanted a very small proportion had been successes: luckily in many cases absorption went on in the alveolus and the tooth came out. There was a question as to whether the periosteum was likely to retain its vitality—whether the tooth should be preserved in antiseptic solutions with the view of its retaining its vitality and the cells remaining alive for a few months. Certainly if fresh teeth were used and put into very weak solutions, he thought syphilitic infection would not be difficult to obtain.

Mr. H. J. ALBERT, in reply, said he had no hesitation in saying that he did not care whether it was or was not a

scientific operation so long as it succeeded. He had been asked by Mr. Baldwin whether he used dry teeth. He had always used dry teeth; his teeth were either taken from skulls, from living people, or from the dissecting room. He did not know why he should disguise the fact that he had taken teeth from the dissecting room. He regarded the dissecting-room teeth, when sterilized, as quite free from possible syphilitic or any other infection. He firmly believed the tooth was mechanically held, and he did not see why it should not remain mechanically held. It was known that in certain cases glass was tolerated, and he did not see why bone also should not succeed. He had such a firm belief in the operation that he was beginning to transplant glass roots with that object, but the difficulty was that he could not get them made properly. It was a question for the future, but he believed it would be successful. He agreed with Mr. Bennett that the width of the root was the crowning point of the success, and he believed the tooth was simply held mechanically by its own width.

(Two cases (1 and 3) were in attendance for inspection by the members.)

Mr. E. Balding (jun.) showed the models of a girl who at the age of 11 years 8 months still had all her milk teeth, with the exception of the second left upper and lower molars, which were removed for caries, and the right upper central, which had been shed owing to the eruption of its permanent successor. The four first permanent molars had also erupted, but there was no sign of the presence of any other permanent tooth in either jaw, unless a slight looseness of the right upper lateral which has existed for over a year could be taken as such. The history of the case, so far as it had been possible to ascertain, was as follows: The child was the sixth in a family of seven, but there was no marked peculiarity in the teeth of any of the others, including the parents. She was a well-developed, healthy and intelligent child, having been quite free from illness from birth until her eighth year, when she had measles, and a year later scarlet fever. In her only relative, a cousin, the teeth erupted at the normal period.

Mr. Pearce Gould then read a paper which is published on page 145.

DISCUSSION.

Mr. STANLEY BOYD said that Mr. Pearce Gould had overlooked the first of his cases, namely, the one he had shown at a previous meeting of this Society, and which he had

undertaken with his colleague, Mr. Colyer. He had removed the growth on two occasions, but it recurred a third time, and it was absolutely necessary to do something radical to free the patient from the growth as thoroughly as possible and he had to resect a piece of the lateral portion of the jaw. It was that which really first put him on the subject. The young woman was engaged to be married; her young man was at the time away, and she was very anxious indeed that he should not find her with her chin on one side of the middle line when he came back again. Mr. Boyd cut the piece of bone out, and in doing so it occurred to him that a piece of knitting-needle might be of use. He broke the knitting-needle off to the length he needed in order to replace the piece of bone. He thrust one end, which was perhaps very thoughtless of him, into the dental canal of the one fragment, and the girl had a good deal of toothache for the following twenty-four hours. The other end of the needle he put into a hole drilled on the other portion of the mandible, and the result was very satisfactory. The girl had pain of a slight nature for some four or five weeks. Having no notion that the splint would stay in, but expecting that it would certainly appear again, he promised her that he would take it out and relieve her pain. She was given an anæsthetic in order that he might do so, but he could not find the needle. He tried to feel it in various ways, and he was quite certain that the needle had slipped from the bone, the scar tissue yielding beneath his fingers, and failing to find the needle he then left it alone. The girl had no pain after that, and she believed the knitting-needle had been removed. She was fitted with a denture by Mr. Colyer, and her chin remained in the midline during several months before she disappeared from observation.

His second case was that referred to by Mr. Pearce Gould. He made up his mind in this instance to try silver wire, so that on boring through the ends of the fragments he might fix the spanner and endeavour to prevent it shifting in the way he thought the knitting needle had shifted. That case Mr. Pearce Gould had referred to sufficiently.

It seemed to him the points of importance were first of all, as Mr. Pearce Gould said, to have some material which could cut to any length they wished, and a material which would easily heal in. He did not think there was anything better than highly polished steel. In the first place it was strong, in the next place it could be broken to

any length that might be wished : it had an absolutely smooth, non-absorbent surface, and that appeared to him to be of great importance in a cavity that was more or less septic. Granulation tissue crept up to the steel and came into intimate contact with it, and he imagined that the septic organisms hardly had room to grow between the steel and the living tissue. At all events polished steel was a material that did remarkably well. It did not rust, as people sometimes thought it did. The most he had ever seen happen to steel—and he had now and again to take out a screw or needles, as he supposed everybody had had to do—was that it had only been simply blackened. It appeared to him therefore that steel had many advantages. On the occasion when he brought forward his first case before this Society many suggestions were made and the matter was pretty fully discussed, but he did not remember that anything was suggested which seemed to be better than steel. Mr. Pearce Gould's first case showed very clearly indeed the importance of having a shoulder to the spanner of iron. Obviously the point of a knitting-needle, resting against bone, when the traction was so very considerable—as granulation tissue traction always was—was not likely to be successful. He had been wondering whether there was not some way less complicated than that of having screws to fit into the jaw into which the bar of steel might be slipped. The best plan he could hit upon so far had been the idea of a largish shot clamped on to the needle at any point wished, as in the ordinary shot suture, split half through and forcibly clamped on. It appeared to him although he had had no opportunity of trying it, that that might possibly make a shoulder sufficiently resistent to prevent the displacement. The lead might be moulded to fit more flush against the jaw than the rounded shot would. The next point of importance seemed to him to be that union should, if possible, be obtained quickly so that a large quantity of granulation-tissue might not be formed ; for in proportion to the amount of granulation-tissue formed would be the traction tending to force the spanner through the bone. That would of course vary very much indeed with the nature of the case, and he imagined from Mr. Pearce Gould's account of the third case that it was absolutely impossible to cover it, and therefore one could not expect to get a very good result in such a case. The unsatisfactory point about the operation and about its prospects seemed to him to lie in

the bone. There did not appear to him to be much difficulty even in a septic cavity to get the things to heal in, but in bone they had to deal with a material which was unsatisfactory, because it would not stand pressure. No tissue in the body, as far as he knew, would stand constant pressure. He was sorry he was not in time to hear the whole of Mr. Albert's paper, and therefore he did not feel in any way in a position to discuss it, but it did seem to him that to expect anything to hold in by pressure if it were driven in firmly, was not a well-founded hope. He would be very glad to own himself wrong if the teeth had remained in for a long period. They all knew the effect of trying to fill up a hole in the palate with cork, it held in for a time but not for long. That fact told against the operation of putting spanners into the jaw, and the only way the problem could be solved, so far as he could think, was by providing a broad shoulder to bear against a good surface of the jaw and by reducing the amount of granulation-tissue as far as possible.

Mr. STORER BENNETT said it seemed to him that one of the great dangers they had to encounter in treating such cases as Mr. Pearce Gould had reported, by putting in wires of any kind into the substance of the jaw, was that they were very liable to get a small amount of necrosis in the piece of bone immediately surrounding the wire inserted, and therefore to get a good deal of subsequent trouble. They knew that in cases where fractured jaws were put up by means of holes being drilled into them and the parts united by means of wire, that although they might get union of the bone very successfully, the sort of tube of bone surrounding the wire itself very often died, and some little complication arose in consequence. He thought they had something else to guard against beside the mere approximation of the fragments—they had to guard against the rotation of the fragments on the bar. There was a tendency of the muscles not only to draw the fragments together, but also to rotate them, and he thought that if in addition to fixing such a piece of wire into the substance of the jaw, Hammond's splint were applied to the teeth themselves in those cases where the teeth were *in situ*, they would very largely counteract the tendency there might be for that rotation to take place. He thought it was very probable they would find less unfortunate results in the ends of the wire subsequently protruding, as in one of Mr. Boyd's cases, and also in one of the cases Mr. Pearce Gould had reported. It might be in the recollection of some

of the members of the Society, that something like fifteen or twenty years ago Mr. Lawson had a girl under his care who had necrosis on the left side of the jaw, and from contraction of the cicatrices entire closure of the jaws resulted. Several operations were performed by means of wedges and such like to get her jaws open. Mr. Hepburn took a great deal of trouble to get the jaws open, and subsequently he (Mr. Bennett) had something to do in the same way. Eventually after several returns, Mr. Lawson removed a piece of bone from the middle line. In that case, then, they had to counteract the tendency for the movable fragments to become approximated. On the right side there was a great danger of the jaw being thrown over towards the middle line, or over the middle line. For that purpose he devised for Mr. Lawson a little piece of apparatus which answered very well for two or three years, but, as nearly always happened in hospital cases, the patient, after a certain length of time, passed out of his observation. (Mr. Storer Bennett exhibited a duplicate of the piece of apparatus he devised).

Mr. G. CUNNINGHAM said that it was a good many years ago since a surgeon in Lyons, Prof. Ollier, took a dentist into co-operation and succeeded in remedying many of the defects similar to those which had been before the Society that evening. Many of the members were acquainted with the methods of Claude Martin. Claude Martin's plan was to prepare before the operation, as nearly as possible, a jaw which resembled that on which the surgeon was going to operate. He made a rough study of the part to be removed, and then made a reproduction in vulcanite, but somewhat larger, thus taking into account one of the difficulties which Mr. Pearce Gould very rightly brought forward, that something was required which would be capable of adaptation to the needs of the surgeon. The material employed by Claude Martin was vulcanite, and the vulcanite replaced the part that was taken away in shape and in form, and was secured to the remaining portions of the mandible by means of platinum bands with ordinary steel screws penetrating into the substance of the bone. There was no doubt that Claude Martin had really had great success in the treatment of cases by that method. But that was not the only method. There was another surgeon, perhaps even more famous, by the name of Péan, and he had associated with him a very expert dentist of the name of Michaels. Those gentlemen worked on a different plan altogether to that of Claude Martin. Michaels objected to

Claude Martin's plan, and perhaps, in making his criticism, he was also criticising very strongly points brought forward by Mr. Pearce Gould and Mr. Stanley Boyd, that Claude Martin was depending rather on an unsound foundation, that he was counting a good deal on getting a firm hold for his screws in the cancellous part of the bone. Michaels thought the proper thing to do was to put screws right through the remaining parts of the bone, and not depend on any screw that merely penetrated the cancellous part. If what he said were correct with regard to the screw passing through the outer surface of the bone and impinging in the cancellous structure, how still more true must it be for any part screwed into the cancellous part of the bone itself. Another possible objection raised to Claude Martin's system was the plates that bore on the body of the jaw. Those plates covered a certain portion of the periosteum, and there was a liability, if not a certainty, that there would be necrosis going on underneath them. That was a disadvantage, and to get over that Michaels used a rounded surface so that he got a firm hold with as little contact as possible, so as to avoid as far as possible all the troubles that came from micro-organisms. The plan adopted by Michaels in his operations consisted of a kind of crib which embraced the ends of the bone, and the space between he filled up with a sort of frame-work of interlaced wire, made of strong platinum. He used gold screws and nuts. After listening to the discussion that evening, it occurred to Mr. Cunningham that the best and most practical device yet made by British surgeons seemed to be the device of Sir William Stokes. His crib, which embraced a good part of the jaw in order to hold the portions apart, contained the essential principles advocated by Michaels, with the difference that it was not sufficiently strong in between to stand the great pressure, and should have been left *in situ* instead of being removed after thirteen days. He thought Mr. Storer Bennett was quite right in pointing out the complex nature of the change that would take place after the removal of a portion of the bone—that it was not merely a drawing in, but that there was a certain rotatory action. He had had an opportunity of talking over the matter with a surgeon who had a case in which an operation was necessary. Before operating the surgeon had both the methods, Michael's and Claude Martin's, laid before him, and he adopted the latter system. The dentist was called in beforehand and made the jaw and splint before the operation. Dr. Griffiths

operated and Mr. Lennox executed the necessary appliances.

He would like to ask the surgeons present for a little information. In these cases where the jaw was removed, was it not sometimes the fact that the tissue which was most likely to lead to the recurrence of the disease was the cancellous portion of the bone? If that were so, Michaels suggested, instead of taking out and resecting a part of the jaw, that he would be inclined to take out the whole jaw and put in an artificial jaw, including condyles and everything else, braced up on his splint system. Michael's experience was that in those cases in which he had been concerned there had been recurrence, and the recurrence was mainly because the disease had been brought about by the cancellous part of the tissue remaining. He laid great stress upon the fact that in cases where the periosteum remained, new bone would be formed round the metallic structures inserted in the jaw.

Mr. DENISON PEDLEY said that he took the liberty of mentioning two cases which had come under his notice, and at the same time would offer a suggestion to Mr. Pearce Gould from the dentist's point of view. Some years ago at St. Thomas's Hospital, Sir William MacCormac operated on a man with epithelioma of the tongue and floor of the mouth. Shortly afterwards necrosis took place (of about one inch on each side of the divided portion of the mandible). The jaw assumed an acute angle in front, the symphysis having disappeared. In looking at the case it seemed advisable to keep the two halves of the jaw separated, and to do this a piece of gutta percha was introduced until some healing of the tissues had taken place. A few weeks later the patient's mouth was in good enough condition to be able to take a mould. This was done, the portion of the mandible being held apart—after the gutta percha was removed—by a silk ligature passed round the bicuspid on both sides and held by the patient. A simple vulcanite splint was made with four incisors attached, and this was inserted. The splint answered its purpose well, and the normal bite was assured. Unfortunately, recurrence of the disease took place. The second case was that of a child who jumped out of a bath-room window, and whose mandible was fractured in several places. The surgeon in charge of the case attempted to obtain union by wiring the portions of the jaw together. The result was, as usually happens in such cases, exfoliation of bone and disappearance of the wires. Mr. Pedley took models of the mouth, deformed as it was, and the plaster cast of the lower jaw was

cut at the points of fracture and made to articulate with the upper jaw. A Hammond's splint was made and adapted to the mouth while the patient was under chloroform. Fortunately the periosteum of the jaw was not sufficiently injured to prevent bony union taking place, and the whole of the tissue was reformed without deformity. Mr. Pedley only mentioned these cases in order to emphasize the suggestion he proposed to offer Mr. Pearce Gould, viz., whenever it was decided to perform operations on the lower jaw, the dental surgeon should be asked to take models of the mouth, so that a splint should be made which might be inserted after the operation, to prevent deformity and restore articulation.

Mr. REDMAN said that some few years ago he was asked by his friend, Mr. Humphrey Raymond to assist him in a case where he had to remove the central portion of the jaw of a young girl of 17. Before doing so, he took an impression of the mouth, and made a gold plate to fit over the back teeth on each side, and then put two gold bars attaching the two splints together. That device answered most admirably. He got it in position by means of a screw on each side. Unfortunately the girl died, from some cause or other, before the case could be completed, but for the time being it answered well. His partner also had had a similar case, and at the end of three years that was still going on well, and he therefore thought the principle would answer. He considered it a matter of great importance that the impression should be taken before the operation, as Mr. Pedley suggested.

Mr. H. LLOYD WILLIAMS said that some years ago he was asked to see a case where a portion of the jaw had been removed about a fortnight previously. In order to keep the parts from closing up any further the only thing possible, it seemed to him, was to apply a Hammond splint. He made one, but he found that in a few weeks the pain caused by the contraction of the cicatrices and the resistance of the Hammond splint on the teeth was so intolerable that the man came almost weeping one day, asking that the splint might be taken away. The splint was removed and he was very much relieved. He mentioned that case because a Hammond splint simply attached to the teeth had been suggested once or twice. But without some support between the actual bone of the jaw, he thought that was very likely to fail.

Mr. Cunningham had referred to screws being put through the jaw to keep the splint in position. Some time ago Mr. Lloyd Williams had suggested the same measure to Mr.

Keetley, his colleague at the West London Hospital. His idea was to use gold and to make a hollow box with flanges to embrace the ends of the jaw and to put gold screws through the jaw. Mr. Keetley rather opposed the idea, because he did not think he could ever use those screws and thread them properly with a nut. The idea of Sir William Spokes seemed to be a good one, but he did not think the splint would be effective much longer than the thirteen days it was kept in.

Mr. J. F. COLYER: Probably Mr. Stanley Boyd was a little more sanguine in regard to the favourable results than he was. There was one case which he thought was peculiarly instructive. A patient came to him at the Dental Hospital with a fairly extensive myeloid sarcoma on one side of the mandible. It was necessary to remove the mandible on that side, including the condyle and coronoid process. He then endeavoured to put in a plate to overcome the tendency to rotation of the remaining portion of the mandible. He did that by simply making a vulcanite plate covering the palate in the upper and a plate in the lower, embracing the remaining teeth and filling up the portion which had been removed. The upper plate was attached to the lower with one spring fixed on the affected side of the mouth, and the tendency was therefore to push the remaining half of the mandible back into place. So far as that splint went it was perfectly successful. It always kept the mandible back in place, and at the same time the articulation was good; but the patient began to suffer from fairly extensive inflammation on the surface of the bone just in contact with the splint, and began to get a good deal of ulceration, and he therefore took the splint out. He heard the other day that the boy was still alive and there had been no recurrence, although the operation took place over five years ago. He did not think himself there was so large an amount of difficulty in keeping the portions of the jaw in place, but the question was whether they could overcome the contraction of the cicatricial tissue. He was bound to say he thought there were very slight hopes of overcoming the tremendous traction of cicatricial tissue. Supposing it were overcome, he would like to know what were the chances of the splint causing a recurrence. That was a question which seemed to be overlooked. He had heard a good deal of the various devices Mr. Cunningham had referred to, and they had been seen in the rooms of the Society, but what he wanted to know was, how long and how far were they successful? It was very well to put the wonderful lower jaw they had

heard of that evening in the mouth after complete removal, but how was such an appliance to be successfully retained? The case of Sir William Stokes was quite a recent case, and there had been no time to test whether the idea was likely to be a successful one or not. Where they were dealing with cases of necrosis he thought it was somewhat different. There he thought a certain amount of periosteum was left behind, and fresh bone was formed which acted as a kind of natural splint.

Mr. WILLIAM HERN said it had been mentioned how frequently necrosis followed any drilling of the jaw with screws, &c., and he therefore thought that as little as possible should be done in the way of foreign bodies penetrating the body of the jaw, and that wherever possible the fixation required should be brought about by means of a splint such as the Hammond, or a splint such as Mr. Redman had mentioned, which was a combination of a Hammond with a platinum or gold covering to the back teeth. The chances of necrosis after drilling, &c., were in his experience, marked. He remembered a case treated at the Dental Hospital some years ago of a simple fracture of the lower jaw, which had been previously wired through the basal portions of the mandible. Necrosis resulted and four of the front teeth were lost. The patient presented himself with the two sides of the mandible fallen together in a way that was so well known where portions of the body of the bone are lost. In that case he put on a Hammond splint, and although he had considerable difficulty in getting it on because the two fragments of the jaw had to be held asunder to get the teeth to antagonise, the case did perfectly well with the Hammond splint, and the necrosed portion filled up with cicatricial and bony tissue. His experience of that case made him wonder whether, when small pieces of the jaw were taken away, in surgical operations, such a method could not be adopted rather than the more severe one of drilling into the jaw. Mr. Pearce Gould's experience with the left and right screws seemed fairly good, but the difficulty seemed to be the want of a shoulder, and he suggested to Mr. Pearce Gould to have a small screw running on each side to act as a shoulder, which could be adapted to any depth or length of the screw he required.

Mr. NEWLAND-PEDLEY said that he had found some of the difficulties which many of the speakers had found in trying to

control two bones. Most of his cases had been failures, and he was prepared to admit that spanners, or screws, or things of that sort, should not be introduced. The only successful case he remembered was that of a child, in which nearly half of the lower jaw, including the condyle, had to be removed for a sarcoma. By the operation the mouth was not invaded the incision running externally. There was very little chance of contraction of cicatricial tissue, but he controlled the tendency to displacement not by any apparatus fixed on the ends of the bones, but by a plate fixed on the upper jaw. He believed in a large number of cases the best prospect of success was, if possible, to work from the upper jaw. The plate consisted simply of a vulcanite cap passing over the upper teeth, and from it a plate of vulcanite was brought downwards between the tongue and the lower jaw. It was made extremely deep, and inserted in the mouth when the mouth was opened as widely as possible, and the moment the mouth closed the jaw closed, and was so firm that mastication could be performed.

Mr. BALDWIN strongly advised the members to read the book which Claude Martin, of Lyons had written. It was a large book dealing with an enormous number of cases. The splints of the other dentist mentioned by Mr. Cunningham were simply modifications of those invented by Martin. He asked Mr. Pearce Gould if he thought that it was an advantage to use a very small piece of wire, or whether it would be better to fill up the whole space which was caused by the loss of the portion of bone? Martin's plan seemed to be to fill up the whole space with a piece of vulcanite as nearly as possible of the natural shape of the piece of bone removed, and he (Martin) described a great variety of cases, some made perfectly irremovable, fixed to the teeth and to the jaw, and the others quite movable so that they could be taken out for various purposes and gradually cut down if necessary. The plan Martin seemed to adopt was to have pretty nearly the whole lower jaw fashioned in vulcanite before the operation, and during the operation the vulcanite was cut to a shape which was supposed to correspond to the bone removed. It was filed down where it was too wide or too thick, and then polished by the dentist and inserted immediately after the operation.

Mr. PEARCE GOULD, in reply, thanked the members for the very kind way in which they had given him so many

hints and so much practical experience that they had acquired on the matter. So far as he, personally, was concerned, the object with which he brought the communication before the Society had been most amply secured in the help he had received. He thought it was evident there was room for further work in the matter from the marked and strong divergence of opinion that had been expressed. The cases that had to be dealt with differed very widely. Cases of necrosis of the jaw occupied quite a different position from cases of operation for malignant disease. Cases of edentulous jaws obviously offered much greater difficulty in treatment than those in which the teeth were in place. Mr. Redman had been kind enough to give him a drawing of the splint that he had used, and to suggest that even in an edentulous jaw, gold caps might be so firmly fitted on to the edentulous gum that the bar attached to those caps would hold the jaws apart. If so he could not help thinking that that would be a very happy way of dealing with the cases. The vulcanite splints Mr. Cunningham had referred to with so much enthusiasm had obviously a great deal to be said in their favour, but he thought the members could not ignore the risk that attached to any screwing into the mandible.

Mr. Baldwin asked whether he preferred such a small thing as a bit of silver wire or steel rod, which he had used more lately, or the larger vulcanite splint. He did not think that so far as size was concerned there could be any objection to the vulcanite splint, and he thought moreover, that if they had a piece of vulcanite which was carefully moulded to the exact pattern of the jaw that was being operated on, they must get a very much better correction of the deformity than when they were using a small piece of wire or steel rod. He hoped that, to the members of the Society as well as to himself, the discussion had not been barren or devoid of interest. He had learned a good deal. No doubt it would fall to his lot to have to deal with many of these cases in the future, and the patients would profit from what he had heard that evening.

The PRESIDENT, in the name of the Society, thanked Mr. Pearce Gould for his most excellent paper, and said it was gratifying to hear from Mr. Pearce Gould's lips that he felt he had not come to the meeting in vain. The President also thanked those gentlemen who had taken part in the discussion and those who had brought forward communications.

The meeting then adjourned.

Dental News.

THE EDINBURGH DENTAL STUDENTS' SOCIETY.

On Monday evening, January 11th, Mr. James Coltman read a paper before this Society entitled "Notes on the Life History of the Tooth," and on February 1st, Mr. J. Malcolm, L.D.S. discoursed on "The Dental Pulp—Diseases and Treatment." Both meetings were well attended, and in the discussion following each paper, many interesting points were elicited.

The Thirteenth Annual Dinner is announced to take place in the Windsor Hotel, Princes Street, on the evening of Friday, March 5th, and the Council of the Society have already innovated the issue of a special circular, welcoming old students and friends to this annual re-union. It is understood Mr. Francis M. Caird, F.R.C.S., the Hon. President-elect, will occupy the chair, and that the menu card, as in the past, will be of a humorous and artistic nature.

INTERNATIONAL MEDICAL CONGRESS, Moscow, August 19—26, 1897.

SECTION OF DENTISTRY.

The Organising Committee of the Section of Dentistry of the Twelfth International Medical Congress in Moscow have issued the following programme of the Section, and request dental surgeons to contribute to the success of the above-mentioned Section by participating personally, and by a report upon one of the questions in the said programme.

In accordance with the Section 17 of the Regulations of the Congress, papers dealing with the subjects named in the programme will have preference over others. This does not, of course, exclude communications upon other subjects, but such communications can only be read provided that time permits.

It is very important to receive the paper, or at any rate, a short account of it before May 1, 1897, for printing and distribution amongst the members of the Congress.

1. What kind of general and special learning is desirable for the persons who are to occupy themselves with Dentistry? Lecturer: Professor Dr. Julius Scheff (Vienna).

2. The Hygiene of the cavity of the mouth and of the teeth.

3. General and local anæsthetics for tooth extraction. Lecturer: Dr. V. Richardson (London).

4. Kataphoresis in Dentistry.

5. The essence and treatment of *Pyorrhœa alveolaris*. Lecturer: Professor Dr. Jozsef Arkovy (Budapest).

6. The treatment and filling of pulpless teeth.

7. Crown and bridge-work from the hygienic and technical point. Lecturer: M. Morgenstern (Baden-Baden).

The manager of the Section, Dr. F. Rein, Moscow, Little Dmitrowka, h. Scheschkow.

The Members of the Committee, Dr. I. Kowarsky, Dr. N. Nesmejanov, Dr. S. Urenius.

ANOTHER PROSECUTION UNDER THE DENTISTS' ACT.

A CASE AT HOVE.

Following up the prosecutions at Brighton a summons was heard before the Hove magistrates against James Galloway, of 6, Goldstone Villas, for unlawfully taking and using certain additions or descriptions, namely, "Dentist," and "Surgeon Dentist," implying that he was registered under the Dentists' Act, 1878, or that he was specially qualified to practice dentistry, he not being registered under the said Act and not being a legally qualified medical practitioner. Mr. W. H. Blaber, solicitor (of the firm of Blaber and Watson, of 12, Great Castle Street, Oxford Circus, W.), appeared to prosecute on behalf of the dental profession in Brighton.

Defendant pleaded not guilty, saying he claimed exemption under the Act.

Mr. Blaber, in opening, explained that the proceedings were taken under the 3rd Section of the Act, which provided that no one, unless registered, should use or take the title of "dentist" or "dental practitioner" or any name or title implying that he was registered as a dentist. It was only since 1878 that the profession had been placed under legal restriction. At the time of the passing of the Act there were some 2,000 bona fide persons practising dentistry. The Act was retrospective and provided for the registration of all persons who had been engaged in bona fide practice prior to July 22nd, 1878. Dentists coming into practice afterwards, however, could only qualify themselves by obtaining the degree of L.D.S. He had a copy of the register, which he handed in, showing that the defendant's name did not appear either on the list of English or Foreign Dentists. Defendant had been practising for some years in Hove and had on a plate "Galloway, Dentist." His name and description had appeared in local directories, and he had handed one of the witnesses a circular with the words on it, "James Galloway, D.D.S., U.S.A., Surgeon Dentist," implying an American degree without specifying the college.

Henry Kemp, private inquiry agent, who Mr. Blaber called, said he went in company with Mr. Baldry to the defendant's house, on December 24th. Outside was a plate with the words "Galloway, Dentist," By the side of the door was a case of teeth and on the top was "Dentist." He went to the door and said he wanted Mr. Galloway, dentist. Defendant answered "That's me, will you come inside." They entered the house and Baldry said to Mr. Galloway, "I want my teeth examined." Defendant said "Yes, there are eight want taking out, top and bottom, at the back." Witness said, "I suppose you do them well?" Defendant said, "Oh, yes." Witness represented Baldry as his nephew. Galloway said the price would be £2. He asked if he was a qualified dentist, and defendant replied that he was. Baldry said he would pay a deposit, and paid 3s. for which he obtained the receipt produced. Witness gave the name of Witley.

The Clerk: Did he start on the work, and take out the teeth? (Laughter.)

Witness: No. An appointment was made for a subsequent day, on which, however, they did not call.

Defendant: Did I represent myself as being on the Dental Register?

Witness: I did not ask the question.

Mr. Henriques: The question was distinctly asked.

The register, which did not contain defendant's name, was here put in.

Frederick Robert Baldry, Lillington Road, Pimlico, private enquiry agent, corroborated the evidence of Kemp.

George Woods, Epple Road, Fulham, private enquiry agent, deposed to another visit paid to the defendant, with Miss Alice Watts, on January 4th. He corroborated as to the brass plate and the show case. He saw defendant and asked "Are you Mr. Galloway, the dentist?" He said "Yes, I am, step this way." Miss Watts asked him to examine her teeth, and he said one tooth wanted stopping. He said he could do it with composition for 3s. 6d. He also said to witness "You want something done to yours, and I should be only too pleased to do them for you." He said he put in a top set for £2 10s., and if he had the lower teeth out later on it would cost another £2 10s. Witness agreed to have the work done, and an appointment was made. Defendant gave him a circular with the words "Surgeon Dentist" after his name.

Defendant read a detailed statement showing that he left Great Britain in 1881, and that in 1889 he studied at the Dental College at Kansas, attended the necessary lectures, demonstrations and other work, and was granted a diploma, which he produced for the inspection of the Magistrates. In the same year in which he graduated he was registered in the State of Kansas, and was granted a certificate to practise dentistry in that State by the Board of Dental Examiners, and he produced the certificate. He had an attack of influenza and came to this country to regain his health, but in 1894 he was in correspondence for the purpose of returning to the States. Some years ago he came to England for his health, and went to the Secretary of the Medical Council with a view of placing himself in a position to temporarily practice here. The Secretary sympathised with him, but said he could do nothing unless he qualified himself by obtaining the English degree. He claimed exemption under this Section, explained that he came to London in the spring of 1895, and intimated that as soon as he could make arrangements he was going back to the States.

Mr. Blaber said the plate had been removed since the proceedings had been instituted.

The Bench were unanimously of opinion that an offence had been committed, and imposed a fine of £2 12s. including costs, and allowed £1 1s. solicitor's fee.

SWANSEA DENTISTS.

Three of the five summonses taken out against certain so-called Swansea dentists came before the Stipendiary (Mr. J. Coke Fowler) at the Swansea Police Court. The defendants were:—J. W. Holland, of 3, Dynevor-place, Henry J. Seline, of 9, Grove place, who was represented by Mr. C. H. Glascodine (instructed by Mr. David Seline), and Alfred L. Honeymoon, of Nelson-street, for whom Mr. Villiers Meager (instructed by Mr. Moy Evans), appeared, and the information against them was that they being unregistered under the Dentists' Act, 1878, did take and use a certain description that they were registered under the said Act as persons specially qualified to practice dentistry. The alleged offence was committed on various dates and the nominal prosecutor in each case was Mr. W. R. Smith, solicitor for the South Wales and Monmouthshire Dental Society, who laid the information. Mr. Sidney B. Harries, clerk to the Registrar of the High Court, brought "The Medical Register," 1896, and "The Dentists' Register, 1896," which could only be so produced through this channel. At the outset of the proceedings, the summons against Mr. Holland was further adjourned for a fortnight.

Mr. Glascodine asked who laid the information.

The Magistrate's clerk: Mr. W. R. Smith personally.

Mr. Glascodine: I want it to be understood that the Society is not in any way the persons who laid the information, in case there should be an action for malicious prosecution.

The Magistrate's clerk: It was laid by Mr. Smith as a private individual.

The Stipendiary also said that he mentioned the point at the time and understood that Mr. Smith, senior, was the person who laid the information and not the Dental Society.

Mr. W. R. Smith then opened the case against Mr. Henry Seline, and at the outset read the Dentists' Act 41 and 42, Vic. 1878, Section 3 as follows:—From and after the first day of August, 1879, a person shall not be entitled to take or use the name or title of "dentist," either alone or in combination with any word or words) or of "dental practitioner," or any name, title, addition, or description implying that he is registered under this Act, or that he is a person specially qualified to practice dentistry unless he is registered under this Act." He then said he had the Medical Register and the Dental Register in Court, and that they would find that the name of Mr. Henry J. Seline was not in either of them, though he took it, the onus was upon his friend to prove that the defendant was properly registered. Drawing attention to one or two particulars in the Act of Parliament, Mr. Smith pointed out that an unregistered dentist would not be entitled to recover any fee in a court of law and was proceeding to say that the question for the Bench to decide would be whether Mr. Seline described himself as a qualified dentist would describe himself when

Mr. Glascodine took exception to the wording of the summons, saying that it did not disclose any offence against the Act. He took it the information should disclose the offence, and the information failing this was not complete.

The stipendiary thought it was a matter of evidence.

Mr. Glascodine urged that he did know the nature of the offence alleged against him, and again said the information was insufficient.

The Stipendiary; I will take a note of the objection, if you like. but I over rule it.

Mr. Glascodine went on to quote "Stone" in order to show that there must be no "uncertainty" or "duplicity" about the information.

The Stipendiary replied that by Jervis's Act, and said that if Mr.

Glascodine could show him that he had misled them the Court would be willing to grant an adjournment.

Mr. Glascodine: I am not misled; what I complain of is that I am not led.

The Stipendiary: I should think you have been led by looking up section 3 of the Dentists Act referred to.

Mr. Glascodine admitted that that was so, but still argued that the nature of the offence should be disclosed on the information adding, "in this nineteenth century, our criminal law is not a rat-trap. He did not know, he said, what offence he was charged with, and would their worships say that he was simply brought there in order to find it out? He ought to be told what description he had used in order that he might plead to it, and until he was told that he could not bring his witnesses there to answer what he was charged with,

The Stipendiary: There is no matter, you do appear and make this objection.

Mr. Glascodine: Certainly, sir.

The Stipendiary: And to some extent your appearance overrules it.

Mr. Glascodine: Oh dear no; only as a matter of form.

The Stipendiary: Well, I have heard your objection, and I overrule it, unless you have something more to urge.

Mr. Smith then resumed his opening statement and said Mr. Seline described himself on his printed noteheads—

Mr. Glascodine: What my friend is saying, I take it he is going to prove.

Mr. Smith: Well, sir, I have before me some of Mr. Seline's paper.

Mr. Glascodine: How do you know that?

Mr. Smith: His name is upon it and also his address, 9 Grove place, where, I am going to give in evidence, Mr. Seline carries on business. I am going to prove this; that his name is Henry J. Seline, that he carries on business at No 9, Grove place. and that that business is in relation to teeth. I will not put it any further than that. That being so, I submit the note paper will be sufficiently identified with the defendant and the place. I have not got a person here who received the note paper, but I submit I shall sufficiently identify it.

The Stipendiary looked at the note-head and observed it would be accepted, subject to evidence.

Mr. Smith read the note-head, which gave the address 9, Grove Place, and contained these words: "American and English Prize Medal, Artificial Teeth Company, Henry J. Seline, Principal." But the words Mr. Smith relied upon, he said, were Surgery and Manufactory, 9, Grove Place. He took it that that description would lead anyone to suppose that Mr. Seline was a properly registered dentist. In fairness to the defendant, Mr. Smith said in conclusion, he must say this. The offence alleged against him took place on January 7th, and seven days later, when called upon for advice about teeth, told the person who called "I am not a qualified dentist, but an artificial teeth manufacturer."

Emily Davies, a young woman who appeared in the box with her face swollen as though she had sadly needed the services of some dentist or other, was then sworn, and she deposed that on January 7th last, "in consequence of something she had been told," she went to No. 9, Grove Place, where she saw the defendant and asked him for four new teeth. Mr. Seline replied that he would first have to take some others out, and he extracted two, witness paying 3s. 6d. in return. She left on the understanding she was to pay another visit to the place for the new teeth in a fortnight's time.

Cross-examined by Mr. Glascodine: And he took your teeth out very nicely? (Laughter).

Witness: Yes, sir.

Further cross-examined : A lady named Mrs. Kent accompanied her, and this person told her that she herself had had teeth extracted by Mr. Seline, that he did it nicely and that the charges were reasonable. (Laughter). Witness did not see a brass plate on the door.

Mr. Glascodine : But at the next door there is a large plate setting forth in flaming letters, Mr. So and so, dentist, and so on ? (Laughter).

Witness : Yes, sir, Mr. Thomas's.

Mr. Glascodine ; I didn't want you to mention names. (Laughter).

Witness stepped out of the box, and Mr. Smith observed that he had forgotten to ask her whether she ever called for the new teeth.

Mr. Glascodine : Oh, I admit that the teeth are still there ready for her when she chooses to call for them and that they are very good teeth too. (Laughter).

Thomas Bowen, called, said he had been employed by the South Wales and Monmouthshire Society in getting up evidence in these cases, Mr. Smith was proceeding to examine him with regard to a visit he had made to No. 9, Grove Place, but all the witness could say practically, was that Mr. Henry Seline lived there.

The Stipendiary : If you can go no further than that the case must fall.

Mr. Smith : I am afraid I can go no further, sir, but I submit I have sufficiently identified the note-heading with the address, 9, Grove Place, to allow it to go in.

The Stipendiary was not of this opinion.

Mr. Glascodine : I suppose then the offence with which we are charged is calling ourselves a surgery. (Laughter).

Mr. Smith : No, a manufacturer carrying on business at a surgery. (Laughter).

Mr. Glascodine said he should be obliged to the Bench if they would not dismiss the summons until he had added a few more words in favour of Mr. Seline and his business (Laughter). There was nothing illegal in what Mr. Seline was doing ; he was perfectly entitled to extract teeth, and make and fix artificial teeth, and any lady or gentleman in this land need not be afraid to patronise him as in the past. (Laughter).

The Stipendiary : It may be some consolation to Mr. Seline to know that he succeeded in soothing this young lady's pain. (More Laughter). Although I once had a tooth extracted I remarked to the dentist that he took it out with very little pain, "Pain sir," he replied, "is an element that dentists do not consider" (general laughter). However we (Messrs. W. Walters and David Owen accompanied his worship on the Bench) are all of opinion that the case has not been carried far enough to justify us in a conviction or a fine.

The summons was dismissed with costs.

The summons against A. L. Honeybourne, of Nelson-street was next taken and Mr. V. Meager for the defendant raised the same preliminary points as Mr. Glascodine had submitted, during which the learned Stipendiary expressed his willingness to amend the summons if Mr. Smith was agreeable.

Mr. Smith was not agreeable and a note of the objection was taken.

Mr. Smith then opened the case, and said by means of a lamp outside his house defendant advertised himself as an "artificial teeth manufacturer from the Strand, London."

Martha John, of 30, Orange-street, gave evidence of going with a man named David Williams to Mr. Honeybourne's house in Nelson-street on January 25th last, and asking to be supplied with an artificial tooth. Defendant said she wanted two new teeth, and the charge would be

5s. each, She then left, promising she would call the following morning.

By Mr. Meager: If anybody says that more occurred than this it would be untrue.

Witness: Yes, it would be untrue.

David Williams, of 9, Mariner-street, was called in corroboration, and he said that when Miss John went into the house, she observed to Mr. Honeybourne, "I suppose you are the dentist," or words to that effect.

The Stipendiary: What was the answer.

Witness: Mr. Honeybourne said "yes," and smiled.

By Mr. Meager: He could not swear to the words Miss John used, as he did not trouble much about the business. He was a groom, and Mr. Bowen (a previous witness) sent them to Mr. Honeybourne's house.

Mr. Meager: What do you get for this job?

Witness: Nothing at all, sir.

No arrangement made?—No, sir, nothing at all.

Mr. Smith could carry the case no further and

The Stipendiary said that while the visit to the defendant's house may raise the suspicion that he was doing the acts of a dentist, yet the evidence is so weak, that it is not sufficient to justify a conviction. In order to bring him within the penalties of the act of Parliament, which are very considerable, we must have evidence of the general use of a description—and not some way privately—holding himself out to the world as a dental practitioner. That is my interpretation of the Act, and if you cannot carry the case further than this, then we must dismiss this summons also.

Mr. Smith: Very well, I cannot carry it any further.

Mr. Meager, on behalf of Mr. Honeybourne, pointed out that his client had eight years' experience in London and Swansea before he opened business on his own account, and also endorsed what Mr. Glascodine had said regarding the legality of any person practising the profession of a dentist, so long as the Act relating to description was not infringed. He understood that more than half the dentists of Swansea were registered practitioners, and if the others were afraid of the competition, all he could say was that it would be better if, instead of complaining, they went in for better qualifications. (Slight applause).

The Stipendiary said they all regarded the profession of a dentist as a most important one, and everything had been done by Legislature to protect the public against any false practitioners, and therefore, he hoped that this large borough would be delivered from any false practitioners, if such there were, though at present he was glad to say there were none.

Both Mr. Glascodine and Mr. Meager took exception to the term "false practitioner," and the summons having been formally dismissed with costs, the Court rose.

POLICE INTELLIGENCE.

Mr. J. W. Milbourne, 51, a dental surgeon, of Broadgate, Exeter, was charged on a warrant with deserting his wife and leaving her chargeable to the Wandsworth and Clapham Union. The prisoner was arrested in Exeter and brought to London. He now informed the Magistrate that he had since taken his wife out of the workhouse, and had entered into an agreement to allow her a certain sum weekly.

Mr. W. Charter, who prosecuted for the Guardians, said they had been put to an expense of £20 in respect to the case. The woman was at first chargeable at West Ham in 1893, was then removed to Wandsworth and a warrant was issued in 1894 for the Prisoner's arrest. The Prisoner removed his wife from the workhouse, and the warrant was withdrawn. In March, 1895, she returned to the workhouse, and the Guardians found her a situation. From that time to December, 1895, nothing was heard of the Prisoner. In December, he again took her out, and in December, 1896, she became chargeable once more, and a warrant was issued for the man's arrest. It was true he had now taken his wife out of the workhouse, but the Guardians had been put to great expense.

Prisoner: I have agreed to pay her 7s. 6d. a week. I cannot afford to give her more.

Mr. Charter: He cannot afford to keep his wife, but he can afford to keep another woman.

Mr. Francis said people must be taught that it was a criminal offence to desert a wife. He sentenced him to six weeks' imprisonment with hard labour.

Prisoner seemed dazed at the sentence, and exclaimed—"Can't you revise the sentence? It will ruin me."

Mr. Francis: No.

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

To the Editor of the "British Journal of Dental Science."

Dear Sir,—As I have been asked by so many if the "British Dental Association" was in any way connected with the Brighton Dental Prosecutions, allow me to state that the British Dental Association had *absolutely nothing* to do with the cases. The registered dentists in Brighton were the prosecutors.

I am, Yours etc.,

JAMES F. RYMER.

Brighton, February 1st, 1897.

PROTECTION OF IRON FROM RUST.

It is stated by Deninger, that by applying a solution of a soluble ferrocyanide to the bright surface of iron a homogeneous and impermeable pellicle of ferrocyanide of iron is formed, which protects the surface from oxidation, and so prevents the formation of rust. The solution of ferrocyanide is mixed with a linseed oil varnish containing a small amount of benzol or of turpentine in such manner as to form a homogeneous emulsion. The iron to which this mixture is applied needs no preparation beyond removing any very thick patches of rust which might resist the action of the ferrocyanide.

Pharmaceutical Journal.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester
during the month of JANUARY, 1897.

Number of Patients attended	785
Number of Extractions	503
Number of Extractions under Anæsthetics	144
Gold Stoppings	58
Other Stoppings	160
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	202
Gold and Porcelain Crowns	11
Inlays	
Total	1863

J. STEPHENSON, *House Dental Surgeon.*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only, and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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British Journal of Dental Science

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LONDON, MAR. 1, 1897.

VOL. XL.

CEMENT AND AMALGAM FILLINGS.

By H. BALDWIN, M.R.C.S., L.D.S. Eng.

On first making experiments out of the mouth with the mixture of oxyphosphate cement and amalgam I found that its conductivity to heat was very high, too high to allow of its being used in sensitive teeth with large cavities ; this consideration coupled, with the likelihood of its becoming honey-combed on the surface, owing to the solution of the cement, led me practically never to use it.

I was struck, however, by the facility with which the two materials could be mixed together, and the readiness with which the oxyphosphate laid hold of the amalgam. From this the idea arose that it would be possible to line a cavity with the cement, and while the cement was still soft to fill the rest of the cavity with amalgam, thus combining the real advantages of both materials without the disadvantages of an intimate mixture of them.

I commenced filling large crown cavities in the mouth in this way, practically sticking the amalgam in with the cement. Being pleased with the results, very gradually I extended the range of cases in which I followed this method, till finally I arrived at the position of filling the greatest possible variety of cavities, which previously I would have filled with amalgam alone, and, furthermore, of filling a large number of cavities, in this way, which previously I would have filled with gold. This position I still maintain.

* Read before the Odontological Society of Great Britain.

The *modus operandi* is as follows:—The cavity should be excavated with the usual care as regards removal of the decay, but the amount of undercutting which is necessary is very much less than for either amalgam or gold. The cavity should be thoroughly dried. The amalgam should first be mixed and of a convenient sort of consistency. The cement should then be mixed and of a decidedly thin consistency, not much thicker than would be used for fixing crowns. The cavity should then be filled with the cement, preferably by means of the same spatula as has been used for mixing it. Then immediately a large piece of the amalgam should be pressed into the cement and, by means of a smooth rounded instrument, should be driven more or less firmly home, working from the centre to the circumference, and so expressing much of the cement on all sides. The edges of the cavity should then be quickly cleared of both cement and amalgam, by means of spoon or other excavators, till not a trace of anything is left at any of the edges, especially at the cervical edge, if the cavity is an interstitial one. This obviates the danger of getting the cement exposed on the surface when the work is finished. The remaining cavity should then be filled up with pure amalgam carrying it down to the cervical edge in small pieces, with perhaps a trifle more mercury added so as to ensure its going down completely, and then finishing with harder amalgam and squeezing with bibulous paper in the well-known way. A matrix should be used in large composite cavities and may be applied either before commencing to fill or immediately after packing the first piece or pieces of amalgam and clearing the edges. Putting on the matrix after clearing the edges keeps the matrix clean and free from cement.

The cases for which this composite filling is suitable are practically all those cases which are generally considered suitable for amalgam alone, a great many cases which are

generally considered suitable for cement alone, and in addition a great many cases which would otherwise be suitable only for gold. All large interstitial cavities in molars and bicusps and crown cavities which are fit to receive a hard filling at all may with propriety be filled by this method. There is little in common between a filling of this sort and an ordinary amalgam filling. Ordinary amalgam as a filling material is open to many objections which the combination is entirely free from, and the combination presents a number of merits which belong to it alone. Thus, to compare it, point by point, with gold or amalgam:—(1) it requires a much smaller sacrifice of healthy tooth substance ; (2) it leaves a stronger tooth ; (3) it necessitates much less pain in excavating ; (4) valuable time is saved in excavating ; (5) it interposes a non-conducting layer between the sensitive dentine and the metal ; (6) it adheres to the cavity ; (7) it is more water-tight ; (8) compared with amalgam, at all events, it does not stain the tooth, nor show through the thin enamel of a nasty colour ; and (9) it is quicker than gold, or even amalgam, i.e., when amalgam is inserted with a due amount of care.

I venture to submit:—(1) that all those cases of cement fillings in back teeth which one so often meets with as permanencies would be better treated by coating the cement with amalgam in this way ; (2) that most teeth which are filled with cement as a trial for a temporary purpose would be better filled as a permanency in this way. Where the cement will be tolerated this combination will equally be tolerated, and whereas it is exceedingly difficult oftentimes to pack simple cement tightly against the cervical portion of a deep interstitial cavity it is perfectly easy, by means of the amalgam, to drive the cement well home. In passing, I would like to give it as my opinion that the supposed tendency of cement to undergo specially rapid solution at the cervical

edge does not exist. The disappearance of the cement and appearance of a cavity in this situation is due to the cement never having been in absolute apposition with the tooth at the point, or to the decay there never having been thoroughly removed. The difficulty of packing plain cement at that point is not, I fancy, generally realised, and lies not only in the remoteness of the situation, but in the fact that a little moisture frequently bedews that part, and that the gum presents a prominent and possibly overhanging edge, which edge, when pressed upon, is specially liable to give forth a serous or sanious oozing; 3rd, that nearly every amalgam filling would be improved by being inserted in this way. I have used this method with gradually increasing frequency since my early days of practice, thirteen years ago, and to-day I hardly ever put in an amalgam without the preliminary adhesive stratum of cement. Of course, care and neatness are necessary in this as in every dental operation, and it does not do to leave a layer of cement outcropping at the edges. In a certain proportion of difficult cases this outcropping may occur, but if the greatest care be used it will only be in a small proportion, and can easily be rectified later, when its results begin to show. I would point out, moreover, that amalgam affords such an efficient means of packing home the cement that, even should the cement become exposed, it proves unusually durable.

The accompanying are specimens of this kind of work in large complicated cavities. One tooth and filling has been sawn through. This one shows how small a stratum of cement is necessary to prevent leakage, the cement evidently controlling the shrinkage or warpage of the amalgam. Presumably such alteration does go on in the amalgam, but being held close to the tooth by the cement goes on entirely at the surface. The other teeth were smashed through with cutting forceps.

The teeth were all soaked in water for some little time, and then dried in the usual way before filling, and immediately after were submitted to the ink-test for about forty-eight hours. One specimen shows the filling standing erect, attached by a rather narrow base, but held firmly to the tooth by the cement, although the tooth was broken open by means of cutting forceps.

This method is sticky and messy I admit, but increased efficiency is obtained, and practice soon enables one to overcome its difficulties, and in a very large number of cases to produce a filling which is quicker, easier, less painful at its inception, less liable to subsequent fracture of its retaining walls than can be produced in any other way.

BRITISH TEETH ON THE DOWN GRADE.

By CHARLES FOX, L.D.S.

As dental surgeons we deal with somewhat small matters. "Engineering under the Microscope" is a fair description of our various manipulations. How we dig, and cut, and drill away the infected soil, dam up the intruding waters, concrete the foundations, and block by block build up the masonry that is to resist the wear and tear, crush and crumble of future years. With our eyes intently fixed on these minute operations where the error of a hundredth of an inch in the direction of an instrument or the depth of a cavity may bring about the failure of our golden monument, we run the risk of forgetting the broader aspects of our dental relations, to the general public. That our aspirations are sordidly mercenary or to say that we look upon humanity as existing for the benefit of dentists is a libel: for no profession pursues its work in a more scientific spirit. But as licensed curators of

the British masticatory machinery, are we sufficiently alive to the palpable fact that the said machinery is distinctly on the down grade.

It needs no proof to establish this fact. Every dentist of any experience is tired to death of the question—"Why are children's teeth so bad now-a-days," and knows well that grandfather, whose native born set are still at 85 years of age tritulating the veteran's daily bread; and the awful mouths of foetid stumps which fair young damsels of sweet seventeen open for our inspection, disclose something very rotten in the state of affairs. With a sigh of despair we conscientiously prescribe ether and the sweeping away of the fragments that remain; but as thoughtful men we ponder why these things should be, and whether the direction of our studies more in the preventive way might not throw light on this dental darkness.

Our journals, meeting the needs of a busy class, contain many pages on how to recognise abnormal conditions, and are ever advancing in the best methods for directly combatting caries in individual cases. Our scientific brethren have caught, labelled, and interviewed, the most fascinating microbes; and are clearing from the haze of theoretical speculation the remote ancestral origin of each cusp and tissue of the human tooth. But the causes of this widespread decay in its popular aspect are treated with vague generalities on diet, cleanliness, and heredity, and quickly laid to rest under the mantle of that blessed word civilization.

The public rightly look to us for more definite guidance, and more of our time should be spent in probing, discussing and collecting evidence on every cause of deterioration, and then with combined authority making known the results. A slur will rest on the dentists of the close of the 19th century if they hand on a generation with a still lower standard of dentition, and fail to hold out danger signals that all may

see. Nine-tenths of the population only call on the dentist in extremities. but though the same thing prevails in medicine, that has not restrained our better sort of doctors, such as the late Sir B. W. Richardson, from preaching sanitation, temperance and the reform of general health conditions. The cleansing of our towns and villages has prevented the need of ten thousand extra doctors ; but in all our efforts we can cherish the conviction that the supply of caries will last our time.

Soldiers of the higher type hail every arbitration treaty or bond between great nations with as much delight as the money-making civilian, though the interests of his profession suffer in the reign of peace. Even the much maligned lawyers are said to be codifying our far from simple laws, and smile urbanely when angry disputants settle their little affairs out of court. And shall the dentists thrust into the background of his studies the question of how the ivory gates of the race are to be preserved ?

Taking for the present only one of the usual headings, "diet," one is even there unable with our present knowledge to dogmatise. If we lecture our patients on the need for food that requires mastication, and denouncing slops and soft cooked viands tell them Nature will remove what is not required, we somehow call to mind that burly Scotchman who lived on " parritch " for forty years, and showed a perfect set of teeth, to confound our wisdom. On taking another tack we demonstrate the importance of our food containing the necessary lime salts, or constituents of tooth formation, and perhaps forgetting our own tastes, advocate brown bread very eloquently. Even there some white bread and tea fed lady, will smile upon us with a lovely row of her own home-grown incisors.

In this bustling age, if we insist on daily, duo-daily, or post-every-meal tooth brushing, our orders are not obeyed ;

and the spectre of some anti-tooth brush fellow with his molars that are fit to crack Brazil nuts rises before us to check our positive assertions.

One half the diligence given to less utilitarian branches of dental research, would advance our definite knowledge in this important subject—the real causes of dental deterioration and how to combat them--and raise one of not the least of humanity's burden from the overweighted shoulders.

THE IRRUPTION OF TEETH INTO THE NOSE.

In the *New York Medical Journal* for Dec. 26th, Dr. Alexander McCoy publishes a series of cases illustrating the irruption of the teeth into the nasal cavities. This painful and fortunately rare condition, he observes, is attributable, as a rule, either to abnormal development with rotation of the dental germ—the enamel growing upward instead of downward—or to extra-follicular development. A case originating in traumatic displacement of the normally irrupted tooth is also recorded. As a rule, the floor of the nasal passage is the seat of the invasion the enamelled crown presenting, though extra-follicular irruption at a higher point is also recorded. As might be expected, the offender is usually a front tooth, incisor or canine, but others as far back as the wisdom teeth have been found thus displaced. The clinical interest attaching to cases of this kind is largely that of secondary disturbances which comprise local necrosis, with suppuration consequent on the boring action of a hard body travelling through previously-formed bone, otitis, and even laryngeal spasm. The journey performed by such erratic teeth is sometimes neither short nor rapid. In one case, as read by the light of symptoms, a wisdom tooth appears to have made its way during a period of thirty years through the alveolus into the antrum of Highmore and thence by ulcerative inflammation through the lateral nasal wall and inferior turbinated bone on to the nasal floor, whence it was ejected.

Lancet.

British Journal of Dental Science.

LONDON, MARCH 1, 1897.

PROVINCIAL DENTAL HOSPITALS.

The Annual Reports of several of our Dental Hospitals in England, Scotland, and Ireland have lately been published, and afford interesting and, on the whole, gratifying information. Dental Hospitals are, we think, the youngest of all the special Hospitals, and the way in which these institutions have sprung up in the last few years, and are still multiplying and extending their beneficent influence, is very marked. The reason is, of course, that of supply and demand. Our teeth have deteriorated, their decay and loosening, once a sign of old age, is one no longer, and the teeth of the average individual require attention while they are coming and as long as they remain, while the spaces have to be supplied after they are gone. The first great use of the Hospital is to supply such treatment to those of the public as cannot afford to pay the private practitioner's fee. But it has another and still more important task to fulfil, namely, the training of the future practitioner in all the best methods known to science, so that he can go forth to all parts of the country, and indeed the world, thoroughly equipped to fight disease and benefit humanity.

We hear a great deal about Hospital abuse, and we are free to confess that it is our opinion that Dental Hospitals are abused as much, if not more than other special hospitals. The reason is not far to seek. Dentistry is a very modern science and has only recently been made a close profession; consequently there are many practising it who were trained in the old-fashioned methods in which the forceps played an important *role*. Some of these practitioners have not kept themselves abreast of the times, while people hearing of

fresh methods of conservative treatment are anxious to try them. But the more modern practitioner having gone to great trouble and expense to acquire an adequate knowledge of his profession, expects a proportionate fee. This fee many people cannot afford ; the consequence is that hoping to receive similar treatment at the Hospital they patiently endure the inconveniences attaching to an out-patient department. This state of things will right itself in time, and meanwhile we believe the scrutiny to which patients have to submit is becoming more severe.

That these Hospitals are becoming more and more popular, no one can doubt, as the number of patients is becoming larger. Those which also combine a teaching school, are receiving an increased number of superior students, and therefore are turning out a better class of practitioner each year. Edinburgh has an excellent Dental Hospital and School which has some forty-eight students on the roll, and although it has a heavy debt to be wiped off, is gradually becoming less encumbered and is making solid progress. The conservation cases show a marked increase thus demonstrating that the public is becoming more fully alive to the preservation of their teeth. The Liverpool Dental Hospital is quite a respectable age, having just held its thirty-sixth annual meeting. Since its formation it has afforded relief in over 381,000 cases, a record of which it may well feel proud. Conservative dentistry here also is on the increase, but although the patients may feel grateful for what has been done for them, they do not seem inclined to signify the same by contributions, for the amount paid by them per head is about a penny. This hospital is also in debt and in need of an increased subscription list. We notice that £75 of students' fees has been devoted to the support of the institution. Of this we do not approve, for such fees should go towards improving the educational advantages of the School, or towards providing an honorarium to those who spend their time and talents in instruction. This School, we notice, claims to be the most important one out of London. The Victoria Dental Hospital in Manchester

has been fourteen years in existence, and also shows a splendid record of work done. Its finances show a balance on the right side. The Dublin Dental Hospital is at present in the throes of a lawsuit with regard to its new building. We hope this may soon be satisfactorily settled, and that its career may be one of enlarged importance. We are glad to see that at the annual meetings of two of the Dental Hospitals—those of Manchester and Brighton (which latter claims to be the only institution of the kind south of London) the Chairman took occasion to hope that the teeth of Board School children would shortly come under the regular care of the dental surgeon. We do not know how the new curriculum will affect some of our provincial schools especially in the subjects of metallurgy and chemistry. Those which are in connection with a University ought to have no difficulty in accommodating themselves to the new order of things, and in this as in other matters, the demand will create the supply. The Metropolis apart from its size and advantages will always be the most important centre in regard to Hospitals, but we are glad to feel that so many large towns in addition to those mentioned are carrying on a good work and becoming centres of education, not only to the dental student, but also to the general public in the care of the teeth.

THE BRITISH DENTAL ASSISTANTS' ASSOCIATION AND THE RECENT PROSECUTIONS AT BRIGHTON.—The Secretary of the above Association—which is said to number about four hundred members—has written a letter to the *Sussex Daily News*, commenting upon the recent decisions, especially with regard to the man Ferguson *alias* Cutler. This man, he says, after prolonged experience naturally believed himself to be capable of setting up on his own account, and to prevent him from doing so is to make a slave of him all his life. Ferguson may have had prolonged experience, but that alone confers no right to practice. He cannot become a law unto himself, he and others must conform to the law

of the land, which certainly has not erred on the side of harshness hitherto. As for becoming a slave, he was not obliged to learn mechanical dentistry, but having done so he must abide by the restrictions imposed upon unregistered men, or break through his bonds as many others have done, in the legitimate and honourable way of going through a preliminary examination, and completing a curriculum.

NEW SALARIED DENTAL APPOINTMENT.—We have been informed and are glad to learn that Dr. Pare has been appointed Dental Surgeon to the North-east London Hospital for Children. This, we are pleased to state, is not an honorary post, but a salaried one, as all such positions ought to be. We believe the remuneration is £100 per annum, for two mornings of three hours each per week. The post is not overpaid, but it is sufficient to induce a well qualified man to do good work, not in the perfunctory fashion so often seen.

FIGHTING THE DENTIST.—The *Chemist and Druggist* a short time ago opened a campaign for the purpose of testing in the High Court “some suitable case which should authoritatively establish the right of chemists to undertake such dental work as it had been the custom of a large proportion of the trade for generations to fulfil, providing that no misleading description indicative of special qualification had been adopted.” For this purpose our contemporary invited subscriptions. To this appeal the response was seemingly very modest. A letter was then sent to the Honorary Secretary of the British Dental Association, asking if that body would be willing to agree with the *Chemist and Druggist's* Committee for a case to be submitted for argument to the High Court. This proposal was brought before the executive of the Association, and was politely declined. At this we are not surprised, as the request seems to us a particularly cool one. Our contemporary cannot go to much

expense, and will not take a case appearing before magistrates, but "a really suitable case might still be carried to the High Court." We think the difficulty will be to find a "really suitable case."

THE ONE-MAN COMPANY.—It is quite certain than an amendment to the Companies' Act is badly wanted. We drew attention to the ruling of Mr. Justice Vaughan Williams some time ago, and remarked upon the abuses which might accrue. A fresh case of appeal came before the Supreme Court on February 13th, in which some creditors petitioned for the winding-up of the "London Health Electric Institute." The Company was heavily in debt, and in consequence of the Harness belt exposure (being a similar business), got into further difficulties. The appeal was dismissed, and Lord Justice Lindley stated that with every desire to assist the creditors, the Court was bound to accept the decision of the House of Lords in *Salomon v. Salomon and Co.* This one-man company, therefore, insolvent and useless, cannot be wound up; the promoters cannot be called upon to pay its debts, and justice is set at defiance. It is time the public was protected.

TEETH AND EDUCATION.—M. Galippe, in a discussion at the Société de Médecine Publique de Paris on dental hygiene in schools, is said to have insisted on the fact that "overtaxing the brain by over-study in schools affected dental growth." Among those students who work hard, the teeth become deteriorated in a few weeks after their entry; caries is frequent among the successful pupils; the second dentition is frequently premature, and the teeth that appear are diseased. Among students who are really overworked it frequently happens that the teeth begin to decay when hard work reaches its maximum, at the time of examination, or those that are faulty grow worse, become very painful, and

have to be extracted." While admitting that education, in addition to many other things, is a factor in tooth deterioration, we consider that establishing a direct ratio between over-study and dental caries and between examination-time and toothache is straining a point. As has been often pointed out, an increased supply of blood to the brain would mean a decreased supply of nutritious fluid to the teeth, but this argument has been only brought forward as a theory of imperfect development. When the teeth are erupted, the blood supply can have but little effect. We should say that the brain work is not as much to blame as faulty oral and general hygiene.

PROPOSED DENTAL CLUB.—We published a letter from a correspondent in our issue of January 15th, in which he made a suggestion as a cure for sundry Hospital and other abuses. This suggestion was the formation of a Dental Club to be supported by all members of the profession conducting their practices in a professional spirit. The objects of the Club were briefly—social intercourse, reports of abuses and mal-practices, a Black list for assistants accepting situations with advertisers, and lastly, profits to be employed in furthering prosecutions against unregistered men practising, and registered men who "cover" others.

As we have received no further communication from any other channel, we must perforce feel that there is not a burning desire for this Club. We have had some little experience of Clubs, and we know that they are expensive things to float and keep going, and we doubt whether the "profits" would be sufficiently large to do much in instituting prosecutions. The Galen Club for medical men was formed some years ago, but was a dead failure. However, our correspondence columns are open if the subject is considered of sufficient importance, and we shall be willing to receive the names of any gentlemen feeling inclined to join our correspondent in the experiment.

Abstracts of British & Foreign Journals.

ENAMEL MARGINS.

By FRED SCHUMACHER, D.D.S., San Jose, Cal.

We divide the process of filling a cavity into different operations ; the defining of the cavity margins the removal of decayed dentine, the shaping of the cavity for retention, the insertion of the filling, and the finishing of the surface of the filling.

We will discuss one important phase of the work here, and that is the treatment of the enamel edge, and the extent of cutting away in different teeth and in different cases.

Nothing is more fatal to the longevity of a filling than the failure of enamel edges, and how often do we see beautiful fillings marred by a fracture or failure of the enamel at the margin, to repair which means to weaken the filling and often necessitates removal of the entire filling, rendering the original work of no avail.

First, in regard to the extent of cutting away the enamel, we must consider accessibility to the cavity, appearance and strength, and we may say retention, although I believe we all agree that a filling dependent upon enamel walls for retention is indeed a weak filling.

In all cases of approximal decay in molars and bicuspid the enamel edge should be trimmed away so as to have all edges of the filling accessible to the explorer point, and after the teeth have resumed their natural position, the point of contact should be upon the body of the filling, and not at the union of enamel and filling.

This may seem in some cases like sacrificing appearance for the sake of durability ; but I think such a course much more commendable than sacrificing durability for the sake of appearance.

There are many carefully inserted fillings which have failed at the edges, which would have held longer if the enamel edges had been trimmed away more generously.

The patient probably wanted amalgam used, considering the saving of time and money, but at the same time objected to showing much of the filling on the buccal or labial side.

The result is that the buccal wall is generally undermined by decay in the course of time, depending on the quality of enamel and dentine, and so must eventually be cut away to a greater extent than would have been necessary had the enamel been trimmed away more in the first place. So, by all means, see, that when the operation is completed the explorer point can be passed over all edges, thus ensuring a self-cleansing surface.

Where we have very hard dense teeth, of square shape, the approximal surfaces of which are almost flat and fitted together like a row of bricks, we would find it difficult to extend small cavities so as to bring the edges free from contact with the neighbouring teeth. In these cases we must necessarily leave the larger part of the cavity hidden.

But here we see teeth as just described, as a rule of the very hardest structure and in the mouth of a well-organized and healthy patient.

But no matter of what shape the teeth, if they seem to be of loose structure with chalky enamel, the enamel edge should be carried out to where it would be self-cleansing, subject to the action of the lips, tongue and cheek muscles.

In a large approximal cavity in a molar or bicuspid the temptation is often to leave the cusp intact and depend upon oxyphosphates to strengthen the same. But a large proportion of such cases will present themselves in time with the questionable cusp entirely gone, not so much from recurrence of decay, but on account of the enamel having split at its weakest point. It is safer to use the chisel freely and depend on a liberal groove cut into the grinding surface for retention. By making such retention we can fearlessly trim away all weak enamel and not have to depend upon deep cutting into sensitive dentine.

In incisor fillings, speaking of approximal decay, the majority of failures are at the palatal edge, especially when this edge has not been carried down so as to be accessible from the palatal side.

Where the cavity is of considerable extent it is safer to use the chisel freely from underneath, so as to have sufficient room to fill partially or wholly from that side, as the case may be. At any rate it is a great advantage to be able to finish the palatal portion of the filling from the palatal side, and where this trouble is taken the result generally repays the effort.

In regard to the treatment of the very edge itself, the rule is to bevel all enamel margins, and I think every careful operator bevels enamel edges to a greater or less extent.

In small shothole fillings, we are often tempted, on account of the ease of the work and its simplicity, to leave the edge as it is left by the bur; but it is in just these easy cases, where confidently working speedily, we shatter the enamel edge at one point or another.

By thoroughly bevelling the edges of all cavities, large or small, we avoid the common cause of failure in gold fillings, the shattering of the enamel edges with the plugger-points.

These few points, i.e., keeping the point of contact away from the union of filling and enamel, and the thorough bevelling of all edges, constitute, in my opinion, the most important of precautions in cavity preparation.

Pacific Stomatological Gazette.

DEATH UNDER CHLOROFORM.

Dr. J. C. Buckley, Senior Resident Medical Officer of the General Hospital, Nottingham, gives the following particulars of a case of death under chloroform which occurred in that institution on December 17th, 1896. On that morning the deceased patient saw the dentist of the hospital because of toothache; she had had two teeth removed about a fortnight before with chloroform, and without any ill effect; the dentist then advised her to have several teeth out, and the patient asked to have chloroform. She had some milk about noon, no dinner, and at 4 p.m. the same day (December 17th) chloroform was administered in the prone position, after the lungs and heart had been examined and found healthy. The chloroform was given on a towel; she went under without any struggling or any signs of failure, either of pulse or respiration. About 3ij was administered. Two teeth were extracted; the forceps were then placed on a third tooth, when the patient stopped breathing and the pulse ceased at the same time. Liq. strychnine, mx , was at once given hypodermically, the patient's head lowered, and artificial respiration performed; nitrite of amyl, oxygen, and the battery were given without any signs of returning vitality. A *post-mortem* examination was made next day. The brain was

very anæmic ; the lungs, liver, and spleen were healthy ; the heart weighed 9 ozs. ; the left side was contracted and empty, the right side full of blood ; there were no evidence of hypertrophy or dilatation, and the muscle looked healthy. The kidneys were the seat of subacute nephritis.

British Medical Journal.

JOHN HUNTER AND THE TEETH.

Mr. Christopher Heath, in his recent Hunterian Oration at the Royal College of Surgeons, gives the following facts regarding Hunter's association with dentistry.

"Of the separate volumes which Hunter published, the first was that on *The Natural History of the Human Teeth*, and a *Practical Treatise on the Diseases of the Teeth*, price £1 1s., 1778. The late Mr. Thomas Bell, F.R.S., himself a distinguished dental practitioner, as well as for many years Lecturer on Comparative Anatomy at Guy's Hospital, in the preface to Hunter's essay in Palmer's edition, speaks of the work thus :

If it may be stated that the work in question is perhaps the least felicitous effort of this extraordinary genius, and that of which the errors are the most obvious and striking, some apology may be found even for these in the confined nature of the subject, and especially in the obscure and anomalous structure of the organs of which it treats ; whilst the basis which his experiments and observations have laid for subsequent improvements in our knowledge, both of the physiology and pathology of the teeth, as well as in the treatment of their diseases, constitutes a never-ceasing claim to the gratitude and admiration of every scientific practitioner of dental surgery.

Mr. Jesse Foot, surgeon, in the *Life of Hunter*, already mentioned, does not spare the author, but devotes no fewer than thirty pages to a detailed criticism of this work on the teeth, interspersed with remarks of a more or less scurrilous nature. Foot says, no doubt with truth :

John Hunter, at the time he published this book, had but very little practice, the whole circle being then filled up by names to which I have before alluded : and Hawkins, Bromfield, Sharpe, and Pott were proud and unaccommodating professional men. They were above submitting to consultations with dentists. Their patients, who wanted advice for relative complaints of the teeth, sent for or went to them, and from them took the instructions which the dentists were to obey. Hunter laudibly condescended to accommodate himself to the necessity of the case, and to fill up this chasm in practice he placidly attended on fixed days and hours at the house of a dentist, to aid him by consultation for the benefit of his patients.

In Chapter ix, which treats "Of drawing the Teeth," Hunter has, to his caution against rapid extraction of the teeth, appended the following note: "I must do Mr. Spence the justice to say that this method appears to be peculiar to him, and that he is the only operator I ever knew who would submit to be instructed, or even allow an equal in knowledge; and I must do the same justice to both his sons." Foot thereupon says; "John Hunter was not found to bestow his smiles upon every dentist; his sincerity in friendship confined him alone to the family of the Spences;" and then proceeds to give a personal recollection of the elder Spence, dating from 1762, when he kindly extracted without fee a tooth from Foot, who was then an apprentice.

No doubt, as Bell has pointed out, Hunter made mistakes in his work on the teeth, particularly as regards the development of the second set, and their relation to the temporary teeth. But the sections on gumboils, on excrescences from the gum, on deeply seated abscesses in the jaws, and on abscess of the antrum maxillare show that he had considerable experience in the ailments connected with the teeth and their surgical treatment. His chapter on Transplanting Teeth shows how careful he was in dealing with all the details of such a delicate operation, which we know to have been highly successful in his hands, although eventually abandoned on account of the fear of transmitting syphilis.

British Medical Journal.

A NEW HÆMOSTATIC.

Dr. Frohman, a dentist of Berlin, has recently given to the profession the results of his experiments on Ferripyryn, and states that it has great hæmostatic properties. Its application to more than 100 stubborn cases of bleeding gave excellent results. Post-hæmorrhage seldom resulted, and when it did further application caused permanent arrest. There are no painful after-effects and it yields perfect coagulation. Ferripyryn is a combination of one part ferric chloride, three parts antipyrin and five parts water. It is a dark red liquid and can be purchased at the drug stores. It has an agreeable taste and is readily applied. In case of a lower extraction employ a small spoon and direct a sparing amount of the mixture into the socket; in the event of an upper case apply a saturated pellet of cotton to the socket. It gives immediate relief, and one application usually suffices.

Journal für Zahnheilkunde.

DIAGNOSIS OF SALIVARY STONES.

Lindemann relates an interesting case of a salivary stone observed in a woman of fifty years, who thought the neoplasm of a malignant nature. The tongue, especially in its left half, was enlarged and presented deep marks of the teeth and oedematous margins; the left sublingual salivary gland was also swollen and its surface was of a dark red colour and covered with a network of sinuous veins; the tumour was decidedly hard and cartilaginous. The lymphatic glands of the chin were also quite swollen, the surrounding cellular tissue infiltrated and the skin reddened. She also complained of headache, sleeplessness, thirst, loss of appetite and great weakness; no elevation of temperature. The growth had gradually developed during six to eight months. A pseudo-neoplasm was suspected, and an incision exposed a salivary stone one centimeter in thickness and three in length; the concomitant symptoms then soon disappeared. The stone was unquestionably due to a deposit of lime salt from the saliva, which element is present in large quantity in the saliva of certain subjects.

Deutsche Medicinische Wochenschrift.

IMPRESSIONS.

By L. P. HASKELL, Chicago.

In the *Dental Office and Laboratory*, for April, in an editorial, appears the following:

"Should the edentulous mouth or gums present a flabby appearance, with the ridge placid and weak, and the whole surface showing a soft condition, or should the gums be hard and soft at different points, it would be *useless* to look for any adhesion should the impressions of such a mouth *be taken in plaster*." "It may be set down, then, as a certainty, that soft mouth or mouths having hard and soft places, should not have the impressions taken with plaster."

This may be a correct *theory*, but like many other theories does not hold good in practice in my experience. I have sometimes thought I had more than my share of just such

conditions. The hundreds of plaster casts on my shelves for which plates have been made, will show every possible condition, it would seem, that can be conceived of in the human jaws. Yet successful dentures were made upon them all, upon the various bases, including the heavy continuous gum work, all without air chambers or any appliances for suction, and nothing but plaster impressions used : wax or modelling compounds used in no way. In fact some of the very worst cases, so considered by many dentists who have seen them, have proved very simple, as for instance, the one shown in the Feb. *Cosmos*, where what trifle of ridge there was, was simply membrane, except about a half inch where bone had had been removed. The centre had an abnormal growth of bone. Some dentists who saw the model said they would not have undertaken to make a set of teeth for it, being sure it would not be a success. The impression was plaster ; the only change in the model was raising it over the hard palate, as I deem essential in ninety-nine per cent. of cases to prevent rocking. The plate was aluminum, the die Babbitt metal ; one impression, one die. Teeth attached with rubber. The denture one inch long in front, in order to restore the contour of the face. The patient had seven sets made previously by several dentists, but said this was the first success and he often "forgot he was wearing artificial teeth." The fact is, I prefer just such conditions to the high arch, and unyielding surface. As a rule a plate for such cases, made from a *plaster impression*, taken in the simplest manner possible, the model *raised over the hard centre, a genuine* Babbitt metal die, (and only one needed), when swaged and simply pressed to its place with the finger, will adhere firmly and give perfect satisfaction, at least that has been my experience for fifty years. "Facts are stubborn things."

Ohio Dental Journal.

CAPPING PULPS.

By Dr. GORDON WHITE.

The following method has been successfully used for a number of years, the results for the past four years having been carefully noted, during which time more than a hundred pulps have been capped by this method, each carefully

watched, and only five failures recorded to date. Two of these were helpless from the beginning, having given trouble for three months, and were capped at a risk as an experiment. Two others had ached for a short time, but without inflammation. The fifth developed a pulp stone, necessitating the removal of the pulp. We are persuaded that, in the field of dental operations, the capping of the dental pulp is as successful, properly performed, as the average dental operation.

The method of capping is as follows: The patient rinses the mouth with as warm water as can be used comfortably, to which is added a few drops of an antiseptic. The cavity is then washed with warm water from the syringe and excavated as usual, wiping out with a small pledget of cotton saturated with chloroform. Using sterilized scissors and foil pliers, a made cap is cut "from a prescription blank" and dipped in chloroform, which quickly evaporates, leaving the paper of its original stiffness, and sufficiently sterilized. On this cap, with a small pointed sterilized instrument, is placed the smallest particle of chloro-percha to the chloroform, with fifty grains of aristol to the ounce of chloroform. This little plaster is turned over on the point of pulp exposure and gently pressed to position with the smallest piece of spunk, and a few drafts of hot air thrown on the cap, which evaporates the chloroform, leaving the cap sticking to its position. Then thin cement is flowed over it and the filling is inserted as desired.

Ohio Dental Journal.

GOLD FILLING—CONSIDERATION OF MINOR DETAILS.

By P. G. WOOD, D.D.S., Corry, Pa.

In considering the subject which has been assigned me it seems wise to leave its more weighty phases for discussion by those master minds who have new and original ideas to present, and I shall, therefore, content myself with simply calling your attention to some of the minor details; little things which, when slighted, are the cause of many an imperfect gold filling. It is axiomatic that the perfection of any opera-

tion is largely due to the careful attention given to details, and gold filling is not an exception to the rule.

Taking a proximal cavity in a superior as a typical one for consideration, the first point to claim our attention is to see that the teeth are thoroughly polished and cleansed of all debris that may have collected between them or around the gingival borders. Now, it is a well known fact that a tooth is less sensitive when thoroughly dessicated, so it is better to adjust the dam before any excavating has been done, and in placing it in position let it embrace a large enough number of the adjacent teeth so that it will neither obstruct the light nor be in the operator's way during the remainder of the operation. A doily placed underneath the dam to keep it from the patient's face, will not only be duly appreciated by the patient, but will also tend to the successful completion of the filling, for anything that places the patient more at ease aids the operator. Further dessication of the tooth by the use of warm air will lessen the sensitiveness, and also aid us in detecting all unsound tooth structure. Now gain free access to the cavity, so that all parts can be plainly seen either by direct or reflected light, preferably of course from the palatine side ; but it is far betier, if necessary, to sacrifice some of the labial wall at the expense of the gold, showing than it is to court failure by working in the dark. And I would urge the desirability of having the teeth slightly separated, if naturally very close or crowded. A few fibres of cotton packed between the teeth at the time the examination is made, should it be a few days prior to the operation, will greatly simplify it for all concerned ; then when the teeth return to their normal position we will have the natural lateral contact, so much to be desired.

In shaping the cavity avoid all sharp angles in the margin, or deep pits within. Let graceful curves abound, and make sure that the margin of the cavity will be free, so as to be not only easily kept clean, but as nearly self-cleansing as possible when teeth return to their natural position. A great mistake is often made, and subsequent failure invited, by leaving the palatine wall intact to build the gold against. Better cut it away and replace with gold than leave it to be broken out by the occlusion of the lower teeth in mastication.

Finally, before packing the gold, carefully polish the margin of the cavity with a medium fine strip, for a much closer adaptation of gold can be made to a smooth surface than to a rough one. In packing the gold let small pieces and small

instruments be the rule, filling the most inaccessible portions of the cavity first, always keeping the filling, as it progresses, as nearly level as possible.

It is unnecessary to speak of properly contouring the gold, but it will not be amiss to caution against ruining a nicely contoured filling by using too large disks or wheels, and too wide strips in finishing. After the gold is packed burnish thoroughly from the middle toward the edges of the filling and repeat often during the use of strips or disks. Many a a filling might be improved if this were thoroughly done.

And having ascertained from the dental supply agents that a very large proportion of the disks used by a majority of operators were of the larger varieties—above one half inch in diameter—I would emphasize the statement by repeating that the large disks and wide strips are to blame for the *flat* condition of many of the fillings we see, which should be nicely contoured. And I conclude with the assertion that the greatest cause of all the imperfections in our gold fillings is not the operator's lack of ability to do better work, but it is due to carelessness in the minor details of the operation.

Dental Digest.

COMBINATION GOLD FILLING.

With the cavity prepared, and where the walls are of good strength it is a waste of time to use cohesive gold for any except the latter part of the filling, and then only in cases where it includes part of the grinding surface, select a cylinder which when placed lengthwise will extend a little beyond the cervical margin, or in cases of large and deep cavities one large and long enough to rest against the opposing tooth and to entirely cover the cervical margin, and start your filling. In extreme cases two sheets of No. 3 made into one cylinder can be used to good advantage. Generally however, a large cylinder on each side and a smaller one between the two makes a good foundation. Always remember at this point not to condense each cylinder separately, thus crowding them apart, but a place should be made for the next one, which should be rolled tighter and of a size

that will occupy the place as a wedge. Continue until the cavity is about two-thirds full, when, if it is required, cohesive gold can be driven into and between the cylinders at different points, and then the whole mass of gold, being for the most part non-cohesive and so quite ductile, may be forced into every crevice, making a very perfect filling. On top of the cohesive gold already in the cavity we can readily add more and so continue the filling over and onto the grinding surface, contour and finish.

Ohio Dental Journal.

SIR JOSEPH LISTER'S PEERAGE.

The *British Medical Journal* says : The peerage given to Sir Joseph Lister is not only a tribute paid to science ; in his calling, science and art are inseparable ; so that Her Majesty, in the very act of doing honour to science, expresses her gratitude to the man whose art has saved the lives of thousands of her people.

Not all those who practise the art of our life's work advance the science of it. It is not the will of Nature. To some of us she gives shrewd insight into the characters of men and women; tact, resourcefulness, common sense ; but no love of theory, no patience with books, no power over experimental work. Others, and among them some of our elect, she has made studious and inquisitive from the beginning ; they were naturalists in their boyhood, loving observation and experiment, and they became physicians and surgeons that they might face the problems of pathology in the pure light of science ; but " the common round, the trivial task," of a busy practice do not appeal to them, and here they have no great success : they labour, and other men enter into the fruit of their labours.

And in a few of us, and in a few only, Nature has from the first combined these two opposed temperaments. For them, the science and the art of our work can no more be separated than the convexity and the concavity of a curve ; they see in every patient a problem to be solved and a man to be helped. These take the lead over us, and keep it. One thing yet is

needed, if they are to be not only our leaders, but also our heroes ; they must have those other gifts—not of intellect, but of character.

At last we are represented in the House of Lords ; and our representative—*primus inter pares*, in more senses than one—is indeed gifted with this triune excellence of the perfect surgeon. This word “representative” does not mean that the House of Lords will now redress our wrongs, lighten our burdens, compose our internal dissensions, or pay the least attention to our wants. Sir Joseph Lister goes to the Upper House neither deputed to be spokesman for his profession, nor bound to play a part on the stage of politics ; he represents not the workmen, but their work ; not surgeons, but surgery.

The honour that he has received, as it must needs quicken an old sorrow of loneliness, so it may bring with it some new sense of isolation ; he is alone, even more than all great men are alone. Yet no man is, in the best sense of the word, less isolated ; for the good news of New Year’s Day was welcomed by the whole profession, by the whole nation.

If all of us by a unanimous vote could have advised Her Majesty whom she should now honour, the result would have been the same. And surely this is the whole meaning of a title, that the news of it should be greeted with a full chorus of welcome, without one dissentient voice.

CARE OF THE TEETH.

These directions taken from the *Family Doctor* are evidently written by a practical man.

In addition to the use of a suitable tooth-brush and tooth-powder on the teeth, there is no practice which commends itself so highly as the use of a piece of silk thread. It will take the average person some time to become expert in handling it, but when this is attained, it will be acknowledged the best tooth-pick and beautifier of teeth in the world. Cut off from the reel a piece of silk about fifteen inches long, which thoroughly wax. With the thumbs and forefingers carry the waxed floss silk into each space between the teeth, the re-

maintaining three fingers of each hand being used to hold on to the ends of the silk firmly. The thumbs and forefingers of each hand as they hold the silk should be kept but a very little farther apart than the width of the teeth between which the silk is to be passed. Thorough tension of the silk must be kept up at all times. For the eight teeth on the left side of the upper jaw, pass the silk over the end of the left-hand thumb, and over the end of the right-hand forefinger. Thus the palm of the right hand and the back of the thumb of the left hand will be toward the face. Hold firmly, slide it between the teeth with a gliding motion; carry it well down between the necks of the teeth and the free edges of the gums, but not in such a manner as to wound the latter, the pressure being properly brought against the teeth, not against the gums. Before sliding the silk from between the teeth, the silk may be rapidly drawn backward and forward on the necks of the teeth, thus polishing and preserving these surfaces, and "raking out" any deposits of food or incipient tartar which may be there. The silk should be slid from between the teeth with the same tension as when it is introduced between them, otherwise it will tear when the teeth are very close together. If this rule be observed, and the silk still tears, it indicates one of several conditions—a cavity of decay; a scale of tartar; or a sharp point or jagged edge of the tooth, any of which conditions should be corrected by a reliable dentist.

EUCAINE.

G. W. Spencer (*Univ. Med. Mag.*, Philadelphia, November 1896), has used eucaine hydrochlorate as a local anæsthetic in 20 cases of operation for various conditions, such as ingrowing toenail, abscess of the jaw, face, and elsewhere, infected wounds, epithelioma of nose, sebaceous tumour and ganglion; and his conclusion from this experience is that this agent produces the most complete local anæsthesia of any drug used up to date. He gives a table with full particulars of the operations, and the results were entirely satisfactory. In experiments made to determine the value of various local

anæsthetics in operating upon ingrowing toenail, the same operative method was practised in all the cases, no matter what anæsthetic agent was employed. An attempt was made in a certain number of these cases to produce anæsthesia before and during the operation by constriction and ethyl chloride, and to produce it after the operation by the application of pure carbolic acid. This method was soon abandoned, as the anæsthesia was incomplete, but by the employment of eucaine in addition to the above means, the operation was rendered absolutely painless from the beginning to the end ; in fact none of the patients were inconvenienced by pain, and the first pain they were conscious of was caused by the redressing twenty-four hours after the operation. The amount of eucaine to be used will depend upon the severity and duration of the operation. When the solution is to be injected as in the case of punctured wounds, tumours, etc., from 1 to 2 drachms of a 5 per cent. solution will be sufficient in most cases to cause complete anæsthesia. When the drug is to be applied to a raw surface or to mucous membrane, as in ulcers, if the surface is large it is best to apply 1 drachm of a 5 per cent. solution to the wound, then saturate a thin piece of cotton with a like amount of the same solution, and allow this to remain in contact with the surface for five minutes. At the expiration of this time the area can be lightly curetted without pain. After the superficial tissues of an ulcer have been removed by light curettement, two more drachms of the solution should be applied in the same manner. Small ulcers can be treated by the same process by using smaller amounts of the drug. In 11 of the cases the anæsthesia was complete within five minutes after the application. In seven cases it was complete three minutes after the administration. In one case anæsthesia was present two minutes after the introduction of a half drachm of a 5 per cent. solution, and in one case in which the tissues were infiltrated with inflammatory products the anæsthesia was not complete before ten minutes. No systemic effects of the drug were observed in any of the cases. Eucaine is rapid in action, safe, produces positive and prolonged anæsthesia, causes no serious after-effects, and can be rendered aseptic by boiling. The author considers it the best local anæsthetic before the profession.

Legueu, at the Association Francaise des Medecins et Chirugiens Urologistes (*Med. Mod.*, October 28th, 1896), reported that for six months he had used eucaine instead of

cocaine for three reasons: (1) the anæsthesia is at least equally perfect; (2) its toxicity is less, inasmuch as two guinea-pigs of the same weight are killed by six centigrammes of cocaine in three-quarters of an hour, and eight centigrammes of eucaïne in an hour and a half respectively; (3) the solution can be sterilized by heat, whereas cocaine is decomposed by this means. He uses solutions of a strength of 1 in 100 to 1 in 500; he injects under the skin 8 to 10 c.cm. of a 1 in 100 solution, and into the bladder 100 to 200 g. of the 1 in 500 solution. The only drawback which he has found in eucaïne so far is that it causes congestion of the parts to which it is applied.

British Medical Journal.

THE EFFECT OF CLIMATE ON CONSTITUTION.

By Dr. LUIGI SAMBON.

Of course climate acts upon the human constitution as on animal life in general and temperature is certainly one of the most important of all climatological factors. A striking example is the change in hair which takes place in the wool of European sheep imported to the West Indies or to the West Coast of Africa, but the effects of climate upon the body have little to do with the unhealthiness of tropical countries. Animal life responds to the influences of surroundings by changes essentially protective. A convincing example of this marvellous process of adaptation is that of a gull (*larus argentatus*) of the Shetland Islands, which twice every year changes the structure of its stomach according to its food. During the summer it feeds on grain, and has the gizzard of a graminivorous bird; during the winter it feeds on fish, and the gizzard is transformed into a carnivorous stomach.

British Medical Journal.

PAINS AFTER EXTRACTION.—Of nitro-glycerine take a single drop in a *half glass of cold water*. The nitro-glycerine should be a one per cent. solution.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, February 1, 1897, Mr. Robert H. Woodhouse, M.R.C.S., L.S.A., L.D.S. Eng., President, in the chair.

The Chairman said they were all aware of the recent elevation to the peerage of Sir Joseph Lister, in recognition of his services to medical science. Sir Joseph Lister's work would live throughout all ages, for he had done more for antiseptic surgery than almost any other man in the country. The dental profession had participated to such an enormous extent by the laws of antiseptic precautions, which Sir Joseph Lister had been able to define and to bring before the scientific world, that the Council of the Society felt it would only be becoming to send him some words of congratulation on his elevation to the peerage. The proposal was then put to the meeting and carried by acclamation.

The SECRETARY read the minutes of the previous meeting, which were confirmed.

The following gentlemen were proposed as Members of the Society:—As resident members—Russell Barrett, L.R.C.P., M.R.C.S., L.D.S., 6, Chandos Street, Cavendish Square, W.; Charles W. Glassington, M.R.C.S., L.D.S. Edin., 6, Pelham Crescent, South Kensington; Joseph Lewin Payne, L.D.S. Eng., 17, Railway Approach, London Bridge, S.E.

The following gentlemen were elected members of the Society:—As non-resident members—Wilfrid William Gabell, L.D.S. Eng., Chiltern Villa, Station Road, New Barnet; A. T. Hilder, L.D.S. Eng., 83, Edmund Street, Birmingham; John George Wallis, L.D.S.I. and Glas., 33, Albion Street, Hull. As a resident member—Alick Condell Strand, M.R.C.S. Eng., L.R.C.P. Lond., L.D.S. Eng., Helenslea, Child's Hill, N.W.

The Librarian announced that since the last meeting of the Pharmaceutical Society he had received the Calendar for 1897, and the usual exchanges and periodicals.

Mr. STORER BENNETT said that as a result of his appeal at the last meeting, he had received several old bone plates. One was a very interesting specimen from Mr. T. R. Chambers,

which had evidently been worn in the mouth for a considerable time, because the base of the plate was carious and much eaten away on one side. The plate had been carved at the back to imitate molars, while the teeth in front were of an early form of tube mineral teeth. It was an exceedingly interesting specimen, showing how much progress had been made since that sort of very laborious work was undertaken by members of the profession. He had also received eight other specimens, all bone plates, which were either the work of the late Dr. Medwin, or at least produced in his workroom. One plate was a very clever piece of carving—such a piece of carving as he was afraid not many of them at the present day would care to undertake. Another specimen showed a combination, the front part being a plate made of ivory, carrying six front teeth, with a metal velum behind, obviously intended to cover a cleft palate, and riveted on to the ivory. Another specimen was an early form of metal work, with bone teeth at the back and mineral teeth in front. It was a very interesting specimen, showing the evolution of mechanical dentistry.

Lastly, there was an exceedingly interesting skull of a child said to be six years of age, presented by Mr. Morton Smale. It had the very flattened face commonly found in children the victims of inherited syphilis. Over the back of the parietal eminence was an eroded condition of bone, probably of syphilitic origin. The most interesting point about the specimen was that in the lower jaw the root of the right first permanent molar (which was not yet erupted, but about to erupt) was placed quite transversely, so that its buccal surface looked towards the back of the second temporary molar. The small, partly developed crown of the right second permanent molar looked somewhat inwards and backwards, while the partly developed crown of the second molar on the opposite side looked directly backwards. Of course the second permanent molar was generally developed in a very different position from that in which it erupted. It was generally directed with its masticating surface forwards, more or less towards the back of the first permanent molar. In the present case the tendency was exactly in the opposite direction, the crowns of the teeth looking not forwards but backwards.

CASUAL COMMUNICATIONS.

Mr. H. W. MESSENGER read the following notes of "A Case of Double Hare Lip, with Cleft of the Hard and Soft Palates":—

"Malcolm Frazer Nash, aged 5½. A posthumous child. Mother strong, but about the seventh week of pregnancy she had acute nephritis of malarial origin, which threatened to bring on a miscarriage.

"The child was born at full time, natural labour. The intermaxillary bone carrying the corresponding piece of lip was growing from the tip of the nose. The front of buccal and nasal cavities was open, the ends of the lip corresponding with the sides of the nostrils, and there was a complete cleft of the hard and soft palates, wider on the left side. At the fourteenth day the inter-maxillary bone containing two large incisors was cut away from the end of the nose. At the thirtieth day the lip ends were freed from the underlying tissues and pulled together, meeting the free median piece of lip, which was used to fill in the centre of the nasal cavity anteriorly between the nostrils.

"Three silver stitches and a few silk ones were used, and all of these were removed at the end of seven days. There was excessive hæmorrhage at the time of the operation, and the child was fed with a long rubber nipple for several weeks. The mandibular incisors were cut at the fourteenth month, and the first temporary molars at the sixteenth month. The child suffered from rickets soon after birth, but this condition improved after twelve months. The hard palate was united by Professor Rose, in King's College Hospital, at the age of three years.

"The family history of the patient is as follows: paternal sister, double hare-lip; eldest brother's second son, single harelip.

"The maxilla owing to the operation is V-shaped; the mandible is very prominent, and the lower lip has a strong tendency to drop."

Models of the case were shown.

The CHAIRMAN said that accompanying Mr. Messenger's communication was a very interesting series of photographs of the case of the patient at seven months, twelve months, two years, and three years of age.

Mr. G. H. BOWDEN related the following history of "A Case of Deafness following Bilateral Dislocation after Extraction of Molar Teeth," as follows:—

The patient in question was a female, aged 37 years, and she came to me for the removal of the left mandibular molars. Nitrous oxide was administered on Tuesday, October 6, by Dr. J. G. Ogle, and the three teeth were successfully removed

with the straight forceps without fracture. On regaining consciousness, the patient was found to have bilateral dislocation of the jaw. Dr. Ogle stated that he felt the left condyle come forward on the eminentia articularis while the first molar was being extracted, but thought he detected the condyle slip backwards after removal of the tooth. This, however was not the case. An attempt was made to reduce the dislocation but owing to the removal of the molar teeth on the left side this proved to be a difficult operation. Nitrous oxide was accordingly administered again, and the reduction was easily affected. A fourtail bandage was advised, and the patient dismissed. About a fortnight subsequently Dr. Ogle called on me and asked if I had heard anything further of the case, and on my replying in the negative he informed me that the patient was stone deaf in the left ear. He asked if I had ever heard or read of such a result, and if not would I write to one of my dental friends and obtain an opinion with regard to the case. I wrote to Mr. Maggs, and he replied, "I am inclined to look upon the case as one of inflammation of the middle ear, or the mastoid cells, and as arising independently of the extractions or of the dislocation. Of course it may be due to inflammation of the Eustachian tube, extending from the site of the extraction to beyond the fauces, due to traumatism or septicism." Dr. Ogle in the meantime had sent the patient to Mr. Cumberbatch of St. Bartholomew's Hospital, and I am able, through the courtesy of Dr. Ogle, to read you an extract from the reply he received: "My first impression was that she had nervous deafness from shock (the fright of finding her jaw dislocated) but the pain she had disproves this, as primary affections of the labyrinth are not painful. I can only imagine that the violent wrench on her jaw, by pulling on the cartilaginous meatus, and through that the membrane, set up inflammation of the tympanum, which inflammation spread to her labyrinth; but against this is the fact that traumatic panotitis is very rare—and to me—unknown in anyone as old as she." I next heard, through Dr. Ogle, that the patient brought about a second dislocation on October 31, while eating some toffee. Soon after this she began to have conduction of sound in the left ear through the temporal bone.

I have brought this case forward with the hope that it may be fully discussed, and also to place it on record, as it seems to be of interest on account of its rarity.

Mr. W. A. Maggs said Mr. Bowden wrote to him with regard to this case soon after the deafness was observed, asking for an opinion. Not having seen the patient, he could not form any definite idea as to the cause of the deafness. He (Mr. Maggs) had never met with a similar case in his own practice, nor did he remember ever to have read of one. Judging from the facts as put before him, he was led to the conclusion that it was a case of *post hoc non propter hoc*, but against this was the opinion of Mr. Cumberbatch, who had the advantage of seeing the patient, and who thought it might be due to traumatic causes. The fact that some amount of hearing had returned spoke hopefully for the future of the patient. Personally he should be glad if Mr. Bowden would bring a record of the case before the Society, say in twelve months time.

Mr. MONTAGUE F. HOPSON said it would be interesting to know how soon after the extractions and the dislocation the deafness had occurred—whether it was the next day or some time afterwards. It was not rare to find deafness associated with caries or other troubles connected with the mandibular molars. He should like to know if Mr. Bowden had subsequently examined the sockets from which the teeth had been removed, noting whether there was any septic inflammation. In Hilton's lectures on "Rest and Pain," a case is mentioned of deafness with a discharge from the ear associated with a carious mandibular third molar, the deafness and the discharge from the ear being both cured by the removal of the tooth. It was an interesting case, inasmuch as the trouble occurred in no less a personage than the late Dr. Addison. A year or eighteen months ago he had a case brought to him by his colleague, Dr. Heath Strange, in which a servant girl had been troubled with a similar condition of things to that existing in the case of Dr. Addison. She also had several carious molar teeth both in the maxilla and the mandible, in addition to a purulent discharge from the ear on that side. Dr. Heath Strange suggested that possibly there might be some connection between the ear trouble and the carious teeth, but he differed from him (Mr. Hopson), inasmuch as he attributed it rather to the maxillary than the mandibular teeth. Anyhow, both the maxillary and mandibular teeth were removed, with the result that a cure was effected, so that he was unable to say whether Dr. Heath Strange or himself were correct in the diagnosis of the case.

Mr. H. L. ALBERT remarked that the question as to whether

the deafness occurred from the dislocation of the jaw or from the reduction might possibly throw some light on to the actual cause of the deafness. He had never met with such a case in his own experience.

Mr. BOWDEN, in reply, said he should be very happy to report upon the case in twelve months' time, provided the patient still came under his notice. He had not had the opportunity of examining the socket as suggested by Mr. Hopson, and in answer to Mr. Albert he could not say whether the deafness arose from the dislocation or the reduction. Mr. Cumberbatch had examined the tympanic membrane, which looked as though there were specks of blood in it, but as that gentleman was not present he was unable to give any further information on the point.

Mr. H. Baldwin read a communication on "Cement and Amalgam Fillings," which is published on page 193.

DISCUSSION.

Mr. ROBBINS said that it must be very evident to all that this much-abused material, amalgam, (abused alike by foe and friend), was now receiving for the first time true scientific attention, owing mainly to the good fight that Foster Flagg and others on the other side of the water had made, together with the scientific attention given to the question by such men as Professor Black and Mr. Charles Tomes. There were many imaginary faults with regard to amalgam, and there were a few real ones, and Mr. Baldwin had in his paper attacked two or three of the latter, which might perhaps be presently overcome. By the method of lining which he had adopted, he had overcome one general difficulty, namely that of possible shrinkage. In addition to that there was the question of staining, and also the thermal question. For the last five or six years he had been endeavouring to work upon the plan described by Mr. Baldwin, and during that time he had had very much better results than formerly. He was sorry to find that Mr. Baldwin entirely disapproved of the mixture of oxyphosphate and amalgam, which he had himself found so useful. The honeycombed appearance, he thought, was largely due to the use of an excess of oxyphosphate over the amount of amalgam. There were cases in which he had found such a mixture extremely useful; and he was sorry to find that Mr. Baldwin had entirely given up that combination. He should like to ask the author to what size of cavity he would limit the combination he suggested—whether he

would use it in very small cavities; he (Mr. Robbins) had been lately trying it in very much smaller cavities than he had formerly tried it in, and was inclined to go still further in that direction.

Mr. A. E. BAKER said he could fully bear out all that Mr Baldwin had said with regard to the use of oxyphosphate and amalgam as a filling, having made use of this combination for several years. He should like to describe the removal of a large compound filling on the posterior surface of a right maxillary bicuspid which he had put in about eight months ago. The tooth was very carious, but he thought it would stand a filling of osteo and amalgam combined. After due preparation he lined the cavity with a very thin layer of Harvard cement, filling the remainder as described by Mr. Baldwin with some Flagg's amalgam. About six months afterwards the patient returned with pulp irritation, which was so violent that he was obliged to remove the filling. The difficulty in removing it was something remarkable. In cutting out an ordinary amalgam plug he generally cut through the centre first and tipped in the two sides and so easily removed it. But in this case he had to cut away every piece of the filling to the cervical edge and to the dentine. There was no discolouration of the tooth substance, although the filling was a very large one. There was a considerable amount of occlusion with the lower teeth, so that the filling, which was well contoured, must during the time it was in have been subjected to a considerable amount of strain. He thought it would be interesting to bring the matter before the Society on account of the intense adhesiveness of the filling for the cavity walls.

The CHAIRMAN said that he had seen a case of a small saucer-shaped cavity in a bicuspid which was filled with soft oxyphosphate filling, with an amalgam filling attached, and a strong wire inserted into the amalgam. The filling was allowed to harden for a day or two, at the end of which time the amalgam was torn asunder from the tooth, and it was found that a strain of 13lbs. was required to accomplish this, and even then the osteo was left in its position. This experiment seemed to show the strength this form of filling must give to weak teeth. He had been in the habit of adopting Mr. Baldwin's method for some time, and the more he saw of it the more he was persuaded that it was a great boon to the profession.

Mr. CUNNINGHAM said that one of the great faults of the

cervical margin of fillings was in the majority of cases due to faulty manipulation. The adhesion obtained from the amalgam in contact with the cement was almost incredible. There was no reason why oxy-chloride should not be used in the same way as oxy-phosphate, for owing to the syrupy character of the latter, oxy-chloride had an advantage over it, and was still further a germicide, which the phosphate cement was not. The right thing to do was to give phosphate cement a germicidal character. In the case of front teeth one used a variety of ingredients, but he had not yet determined in his own mind which he considered the best. He had used powdered mercuric chloride without discolouring the teeth, but it would be found that a germicidal material which would mix with oxy-chloride would not mix with oxy-phosphate cement. The composite filling was the one which gave as nearly as possible ideal results.

Mr. RUSHTON said that this method of filling teeth had been drawn to his notice by his friend Mr. Humby seven or eight years ago, and since then he had constantly employed the method in practice. In some cases his method differed from Mr. Baldwin's, inasmuch as he mixed the phosphate as thickly as possible, and for two reasons, one to save time, and the other in order that the pellet of phosphate could be packed and made into a neat little ball, and one could be quite certain that no speck of phosphate adhered to the margins. It could not be used in all cavities, but when the phosphate was used very soft and sticky a considerable time was wasted in waiting for it to set, and there was a great deal of difficulty in freeing the margin of the cavity.

Mr. HUMBY remarked that so far as oxy-phosphate controlling the movement in the fillings was concerned, that was only partly proved. If they had a contracting amalgam, oxy-phosphate would not hold it. It contracted itself out of the oxy-phosphate. In practice therefore, a filling must be selected which would stand the ink test, otherwise the cement would be left behind, and the amalgam would peel away from the surface. With regard to the question of leaving portion of the oxy-phosphate on the margins, he thought that if the amount left was only a microscopic quantity it was of microscopical importance. He thought it unnecessary that the oxy-phosphate should be absolutely removed from the margins, because if there were a very minute quantity there it really was a benefit rather than a detriment, in preventing staining of the enamel which might overlies the filling. The phosphate

should be, so to speak, incorporated as closely as possible with the tooth substance by mixing it thin and rubbing it into the tooth substance. The after insertion of the amalgam further emphasized the intimacy of the phosphate with the walls of the tooth, and at the same time intimately incorporated the surface of the cement with the amalgam. He had had many years' experience with this sort of filling, but he had only as yet found one amalgam, in spite of that incorporation and mixing, which would stand the test of time. It was necessary to preserve the original diameter and size of a tooth when putting in a filling, because expansion would take place through the reabsorption of moisture. He always made a practice of keeping a tooth charged with moisture during the operation of excavation, and the surface of the tooth being dried for the reception of the amalgam after having been purified by chloroform, so that the diameter of the cavity would not materially alter after the amalgam was inserted.

Mr. WILLIAM HERN said he could endorse what Mr. Baldwin had said as to the advantages of lining cavities with osteo before introducing the amalgam: he thought by this method many of the disadvantages of amalgam were eliminated. He did not favour a mechanical mixture of osteo and amalgam, as it reduced the adhesive qualities of the osteo, and made the surface of the amalgam less durable for hard wear. The question to be determined now was which amalgam was best for wearing purposes. In his opinion the copper amalgam which was so prone to lose its contour, would be out of the running, the advantages that it had in attachment to the cavity and so on, being done away with by the osteo which was made a more water-tight stopping. As to the question of the amalgam leaving the osteo, he had not found that in practice to be at all a common occurrence. He had in his own practice used Harvard's cement, mixed neither too soft nor too hard, but of a moderate creamy consistence. He had been in the habit of putting a rather thicker layer of osteo into cavities than that suggested by Mr. Baldwin, driving the amalgam into the osteo with an instrument in different directions forming pegs or retention points while the osteo was still soft.

Mr. BADCOCK said he had frequently met with cases of crowning where the root of a mandibular molar had decayed considerably below the gum on one side. Under such conditions he fitted a band to the root and put some soft osteo inside the ring, and finished by filling up with amalgam. In

constructing such difficult crowns, the angle at which one cut the root should be considerable, so that the space left between the projecting root inside the band should be sufficiently wide to enable one to force the osteo down to the lowest possible point, and so obtain adhesion.

Mr. MATHESON asked whether Mr. Baldwin had such faith in the method described that he practically discarded the use of gold in crown cavities. If so, he should like to ask whether he felt that the phosphate did prevent the flow of the amalgam so absolutely as to make the amalgam cling to the margins of the cavity as closely as a properly adapted gold filling. If that were so it would almost make a revolution in practice with regard to the filling of such cavities.

Mr. E. LLOYD-WILLIAMS said that personally he agreed with Mr. Humby in believing that there was a danger in the amalgam shrinking away from its anchorage. Had specimens been produced which had been in the mouth for at least five years, he thought it would be found that contraction did actually take place. He had tried the method a good many years ago, but had given it up on that account. Perhaps his manipulation might not have been as perfect as it should be, but he believed that although a better filling resulted than with amalgam alone, still contraction did take place. He was sorry that Mr. Baldwin had discarded the method of incorporating amalgam with zinc phosphate after such a short trial. He (Mr. Lloyd-Williams) should like to know in what proportions he used the combination, and for how long he persevered with his experiments. He put in a filling in 1888, and saw that tooth only the other day, apparently doing good service. He was still of the opinion that there was plenty of room for the combination of phosphate of zinc and amalgam.

Mr. HUMBY said he had been accused of speaking disparagingly of Mr. Baldwin's method, but such really was not the case. He should like to say a word about the amalgam leaving the cement. There were two ways in which he had found this occur. One way was when they had a comparatively small cavity filled with a comparatively large shrinking amalgam, under such condition there was a tendency for the amalgam to peel away from its attachment. If they had a large filling, say of submarine amalgam, it would be found that a different state of things occurred. This amalgam underwent enlargement in spite of attachment to the walls of the teeth, and the walls of the tooth frequently fractured, and

he had noticed instances of this in his practice. The submarine seemed to expand when it was put in in very large bulk, and when building up cavities it would be found an advantage to pursue the plan that he had adopted for some years, namely, when they had put in a certain amount of amalgam over the cement, they should begin to pick little graves, so to speak, in the amalgam, and each of these small graves should be filled with some cement, so as to cut the otherwise huge bulk of the crown up into separate portions. Still the shell of the amalgam would remain, but the internal portion, so to speak, would be filled with cement.

Mr. BALDWIN in reply said that Mr. Robbins had asked to what size of cavity he would limit his combination. As he had said in his paper, he used it practically in all cases where he filled with amalgam—even very small cavities. Mr. Baker had spoken of the difficulty of removing these fillings, a fact he could endorse, for the fillings did hold with extraordinary tenacity. In order to get extreme adhesiveness in large interstitial cavities a matrix should always be used, otherwise the amalgam might not be got thoroughly tight against the cement, or at any rate the outer pieces of the amalgam might not be thoroughly united with those inside. Speaking on the subject touched upon by Mr. Cunningham with regard to the cervical portion of the cement filling lasting as well as the rest, he might say that that very day he had a good example of that in practice. An old interstitial phosphate filling had to be replaced by reason of wear. The loss which had taken place was entirely at a distance from the cervix, and the old cement was absolutely square with the edges of the cavity and perfect at the gum level.

In reply to Mr. Rushton, Mr. Baldwin said that probably Mr. Rushton was using Harvard cement, which required to be mixed much thicker than Ash's or Poulson's. Unless Ash's or Poulson's were mixed thin they set too quickly to allow of the necessary manipulations and to ensure the necessary adhesiveness. For some time Mr. Baldwin used Harvard exclusively, and for adhesive qualities there was no cement to equal it, but he had abandoned it in favour of Ash's or Poulson's (which were identical) on account of their better powers of resisting solution when exposed to the fluids of the mouth.

He objected to the use of oxy-chloride, as suggested by Mr. Cunningham, on account of its extreme caustic nature

especially in large sensitive cavities. Mr. Humby had said that some amalgams shrank and crawled away from the cement. That might be true, but he had not found it to be the case. Such parting of cement from amalgam probably depended upon the kind of amalgam used. He himself always used either Welch's or Standard or a mixture of them. He generally preferred a mixture, first amalgamating a little Welch's so-called gold and platina alloy, and then rubbing into it in the palm of the hand some of Eckfields' or Dubois' Standard filings. The object of this was to accelerate the amalgamation of the "Standard" and to make it more plastic and rather slower in setting. He aimed at getting the Welch and the Standard in about equal proportion.

Mr. Humby had suggested that a microscopic layer of cement was no disadvantage even at the edge. No doubt that frequently happened even when one intended to obviate it. He quite agreed with that gentleman that a very thin layer was not a very great disadvantage, though personally he liked the actual edge to be perfectly free from cement.

Mr. Matheson had asked if he discarded gold in crown cavities, and whether the amalgam showed as good an edge in crown cavities as gold. His answer to that was, yes; but he still used gold unless the cavities were very large, for æsthetic reasons, because it looked nicer. He had said in his paper that the combination could be used in such cavities with propriety. He thought in such cavities it was just as good as gold, considered apart from æsthetic reasons. Personally he liked the mouths of his patients to look as nice as possible, as well as the work to be as durable as possible, because if the mouth looked nice the patient would be more likely to take an interest in it and keep a sharper look-out upon it.

Mr. Lloyd-Williams had said that he had found combination fillings contract, and had asked what would be the result after five years' time. He should like to ask that gentleman if there were any special virtue in the period of five years—why he attributed crucial importance to that time for testing a filling. Personally he thought if a filling stood perfectly for one year it might be concluded that it would stand for a good many more years.

The CHAIRMAN said that in the name of the Society he begged to thank the authors for their casual communications, and especially to thank Mr. Baldwin for his most interesting

paper, the discussion on which had been so complete and exhaustive.

This was carried by acclamation, and the meeting adjourned to Monday, March 1.

Dental News.

ROYAL COLLEGE OF SURGEONS OF ENGLAND. PASS LIST.

The following gentlemen having passed the necessary examinations have been admitted Licentiates in Dental Surgery:—

Amphlett, Donald, Mason's College, Queen's and General Hospitals and Dental Hospital, Birmingham.

Anderson, Charles Frederick, University College, Royal Infirmary and Dental Hospital, Liverpool.

Anderson, Jonathan Harrison, University College, Royal Infirmary and Dental Hospital, Liverpool.

Carter, Charles Edward, Middlesex and the Dental Hospital of London.

Chatterton, Guy, Guy's Hospital, Dental Department and School.

Cribb, Harold Ernest, Charing Cross and the Dental Hospital of London.

Dalby, Charles Burkitt, Owen's College, Royal Infirmary and Victoria Dental Hospital, Manchester.

Donston, John Alexander Malin, Guy's Hospital, Dental Department and School.

Doyle, Clement Needham, Guy's Hospital, Dental Department and School.

Ellis, George Garnett, Guy's Hospital, Dental Department and School.

Evans, Sidney James, Guy's Hospital, Dental Department and School.

Goadby, Kenneth Weldon, Guy's Hospital, Dental Department and School.

Goodman, Thomas Dawson Edwin, Guy's Hospital, Dental Department and School.

Green, Walter, Charing Cross and the Dental Hospital of London.

Halliday, Alfred Reginald, Charing Cross and the National Dental Hospital.

Harding, George Herbert, University College, Royal Infirmary and Dental Hospital, Liverpool.

Harrison, Arthur Edward, University College Royal Infirmary and Dental Hospital, Liverpool.

Hartnoll, Percy O'Bryen, Charing Cross and the Dental Hospital of London.

Hounsell, Ludlow Strangways, Guy's Hospital, Dental Department and School.

Humphreys, Jack Edmund, Charing Cross and the Dental Hospital of London.

- James, John Joseph, University College, Royal Infirmary, and Dental Hospital, Liverpool.
- Jeffery, Ernest, Middlesex Hospital, and Dental Hospital of London.
- Jones, William. Middlesex Hospital and the National Dental Hospital.
- Knowles, Charles Heygate, Guy's Hospital, Dental Department and School.
- Malone, Charles Albert, Charing Cross and the Dental Hospital of London.
- Matthews, George Frederick Cole, Mason's College, Queen's and General Hospital, and Dental Hospital, Birmingham.
- Myers, Thomas Cyrill, Charing Cross and the Dental Hospital of London.
- Naish, Godfrey, Guy's Hospital, Dental Department and School.
- Parrot, Ernest Garner, Charing Cross and the Dental Hospital of London.
- Pearse, Francis Henry, Middlesex and the National Dental Hospital.
- Phillips, Charles Brooking, Middlesex and the National Dental Hospital.
- Reece, Thomas Cadarn, Middlesex and the National Dental Hospital.
- Ralph, Arthur Ernest, Middlesex and the National Dental Hospital.
- Robertson, John Henry, Charing-cross and the Dental Hospital of London.
- Simpson, Graham Scales, Guy's Hospital, Dental Department and School.
- Smith, Bernard, University College, Royal Infirmary and Dental Hospital, Liverpool.
- Smith, Siduey, University College, Royal Infirmary and Dental Hospital, Liverpool.
- Stephenson, John, Owen's College, Royal Infirmary, and Victoria Dental Hospital Manchester.
- Turner, Henry Watson, Middlesex and the Dental Hospital of London.
- Wale, Samuel Thomas, Middlesex and the Dental Hospital of London.
- Wheeler, Ernest Alfred, Middlesex and the National Dental Hospital.
- Whittington, William Barratt, Charing Cross and the Dental Hospital of London.
- Young, Ralph Littlewood, Middlesex and the Dental Hospital of London.
- Twenty-nine gentlemen were referred back to their professional studies for three months.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

A Quarterly meeting of the Council was held on January 14th, the President, Sir William MacCormac, being in the chair.

A report was received from the Dental Section of the Board of Examiners in Dental Surgery in which they recommend a synopsis for the examination in dental metallurgy, and also that the examination in this subject should be conducted by written paper only. The report was approved.

Synopsis of the Examination in Dental Metallurgy.

The physical properties of the metals—gold, platinum, palladium, silver, tin, antimony, mercury, lead, bismuth, zinc, cadmium, copper, aluminium, iron, nickel—viz., lustre, tenacity, elasticity, malleability, ductility, conductivity for heat and for electricity, fusibility, specific gravity, specific heat, expansion by heat, brittleness, hardness, crystalline character, change of volume on solidification. Action of air (either hot or cold), of water, of acids, of alkalies and of sulphuretted hydrogen on the above metals and their principal alloys and amalgams. Effect of exposure of the above metals, their alloys and amalgams, in the mouth.

Gold.—Preparation and properties of pure gold. Cohesive and non-cohesive gold. Precipitated and spongy gold. Assay of gold. Calculation of amount of base metal to be added to reduce the fineness of gold to a given carat, or of the amount of fine gold or of gold of high carat needed to be added to raise the fineness of an alloy to a given carat. The detection and estimation of gold in alloys. The purple of Cassius. The effect of impurities on the properties of gold. The properties of the alloys of gold. Composition of solders of gold.

Platinum.—Preparation and properties of platinum. Platinum-black and spongy platinum. Detection and estimation of platinum in alloys. Alloys of platinum with iridium, gold, silver, and other metals. Dental alloys.

Palladium.—Preparation and properties of palladium and its combinations with silver, gold and mercury.

Silver.—Preparation and properties of pure silver. Assay of silver by cupellation and in the wet way. Preparation and properties of the combinations of silver with copper, gold, platinum and mercury. Composition and preparation of solders for silver. Electro-plating.

Tin.—Preparation and properties of tin. Detection of tin in alloys. Preparation and properties of the alloys of tin. Its combinations with zinc, copper and mercury. Composition and melting points of readily fusible alloys.

Antimony.—Preparation and properties. Properties of alloys.

Mercury.—Preparation and properties of pure mercury. Testing the purity of mercury. Vermillion and detection of impurities therein. Preparation and properties of amalgams of the various metals mentioned in this synopsis. Composition and preparation of the principal alloys which have been used for preparing dental amalgams. Methods of testing such amalgams, as to the causes of their change of volume, permanence in the mouth, and change of colour. Effects of different metals in these amalgams. Possible action of amalgam fillings on other metals used in the month.

Lead.—Preparation and properties. Effect of alloying on its properties. Solders and soft soldering.

Bismuth.—Preparation and properties. Alloys.

Zinc.—Preparation, purification and properties. Preparation of zinc oxide, zinc chloride, and the various material for the oxy-chloride, oxy-phosphate, and oxysulphate cements. Action of acids and alkaline solutions on cements in the mouth. Alloys of zinc.

Cadmium.—Properties, its advantages and disadvantages in alloys and amalgams.

Copper.—Preparation and properties. Effects of impurities on its

properties. Alloys. Modes of preparation and properties of copper amalgams. Preparation of Sullivan's amalgam and its modifications.

Aluminium.—Preparation and properties of aluminium and aluminium bronze. Solders for aluminium and aluminium-bronze.

Nickel.—Preparation and properties. Alloys. German silver. Nickel plating.

Iron.—Differences between cast iron, wrought iron, and steel. Effect of presence of impurities in iron. Hardening, tempering, annealing, and burning steel.

Methods of testing metals and alloys for their various properties as described in first paragraph.

Methods of testing dental amalgams for changing of volume. Effect of sulphuretted hydrogen, water, air, acids, and alkalies on dental amalgams.

Methods of parting gold from silver; rough tests for fineness of gold alloys (touchstone); of preparation of gold alloy of required fineness; of recovery of gold from scraps; of preparation of solders for gold; of recovery of platinum and silver from scraps; of preparation of pure silver; of preparation of amalgam alloys of two or more of the following metals—silver, tin, gold, platinum, copper, zinc; of preparation of readily fusible alloys, containing two or more of the metals—tin, lead, bismuth, mercury, cadmium, antimony, and zinc.

Methods of determining melting points of readily fusible alloys; of preparation of alloys recommended for dies and counter-dies.

Description of furnaces and muffles used in metallurgy.

The blow-pipe; theory and varieties of fluxes.

Colouring and gilding gold,

Purification of sweep or lemel.

PROSECUTIONS UNDER THE DENTISTS' ACT.

At Blackpool, on Monday, Oliver L. Jackson, chemist, of Church Street, was summoned for illegally practising as a dentist. Mr. R. W. Turner prosecuted on behalf of the British Dental Association. William F. T. Brown, clerk in the employ of the London solicitors of the Dental Association, said that on February 4th he visited the defendant's premises. From the verandah was hanging a sign, "About the teeth, consult Oliver Jackson, over 2,000 living testimonials." In the window was a printed paper, "Single sets from 21s., complete sets, 42s. Consult Oliver Jackson, chemist's shop, opposite the post-office." In the shop was a sign, "High-class dentistry in all its branches," and this could be seen in the street. Upon the door of one of the rooms were the words, "Dental Consulting Room." Witness informed defendant that what he was doing was an offence against the law. Jackson replied that he had no idea he was doing wrong. Mr. Fletcher, who defended, argued that there was no offence. Anyone could practise dentistry—they could draw teeth, sell teeth, and manufacture them. They could charge

for their work, but could not recover in Court. The Bench fined defendant 40s. and costs in the first case, and 5s. and costs in the second.

In the Sheriff Court, at Edinburgh, on February 17th, Sheriff Orphaat heard counsel in reference to a complaint, at the instance of William Bloomfield Paterson, L.D.S., hon. secretary of the British Dental Association, against Alexander Emslie, residing, or carrying on business at 1, Rankeillor Street, Edinburgh, to the effect that he had contravened the third section of the Dentist Act, 1878, in so far as, not being a person registered under the said Act, and not being a legally-qualified medical practitioner, he had taken, or used a name, title, addition, or description, implying that he was a person specially qualified to practise dentistry by (1) displaying since October last a sign board at his premises with the words "Dental Office" thereon; (3) by using, on November 6th, a business card with the words "American dentistry" thereon; and (4) by exhibiting on the same date a diploma purporting to be granted by the Dental Society of New York, authorised by the said Legislature, and to confer on Alex. Emslie the degree of Master in Dental Surgery. Mr. T. B. Morison appeared for the respondent, and objected to the revelancy of the complaint, as the complainer had not set out his title. The Dental Statute of 1878 had set forth a definite person to prosecute, and that person was not the complainer. The Summary Jurisdiction Act and the Dental Act of 1878 were the only two under which the complaint was brought, and unless these statutes justified a prosecution at the instance of private persons, the complaint must absolutely fail for want of title. With regard to the third and fourth charges, counsel contended that there was no locus specified, and the words "American dentistry" and "dental office" implied no personal qualification. They did not imply that the respondent was registered under the Act, or that he was a person specially qualified to practise dentistry. Mr. Dewar, replying for the prosecutor, contended, with reference to the point, that there was no title to sue, that the Medical Act of 1886 had repealed the section upon which the counsel for the respondent had founded his argument. As to the third and fourth charges libelled, it was not possible to place a locus on a business card; and counsel argued that the words "American dentist" and "dental office" were used with the object of inducing the public to patronise the premises as a place where American dentistry was practised, in view of

the fact that American dentistry had gained a high reputation in this country. The Sheriff said he would consider the point of relevancy, and give his decision on February 23rd.

A LADY DENTIST.

Emilie Edel, a lady dentist from Vienna, has recently commenced practising her profession at Mostar, the capital of Herzegovina, with as much prospect of success as the two medical ladies, Dr. Krayepska and Dr. Keck, have had. Those ladies, who were appointed by the Government in 1895, attend the Mohammedan women, and by hygienic reforms have considerably reduced the percentage of mortality.

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

To the Editor of the "British Journal of Dental Science."

SIR,—May I be allowed to point out an inaccuracy in the leading article in your issue of the 15th inst.? On page 163 occur the words "*several* of the cases were dismissed or adjourned," &c., (the italics are mine).

The facts are these: Eight men were [proceeded against in Brighton and Hove: five were convicted and fined in sums varying in amount from £2 2s. and costs to £10 and £3 13s. 6d, costs: *two* cases only were dismissed (one without costs), whilst that against Moses Harris was adjourned for 8 weeks, pending the result of the action against the General Medical Council in the High Court. The last case being *sub judice*, no comment may be made upon it at present, but I should like to mention the two principal causes for the dismissal of the cases against Foley and Dinjian. One was that the chief witness for the prosecution was laid up with influenza, and the other that Mr. Marshall Hall (who subsequently appeared against Day, Cutler, Oxborrow, and Barker, and obtained a conviction in each case) was unable to attend when the first batch of cases was taken owing to an action in which he was engaged in the Queen's Bench being unexpectedly adjourned to the same date.

In Foley's case the witnesses had not been attended by him, and had *never seen him until he appeared in Court*. Again, it was proved that Dinjian was not on the Register, and yet the General Medical Council had not proceeded against the American Dental Institute for covering him.

Apologizing for the length of this letter, and trusting that you will deem it sufficiently important to publish in your valuable Journal.

I am,

Your obedient Servant,

"FLOREAT SUSSEX."

TO MEND BROKEN PLASTER CASTS.—Paint the broken surfaces over two or three times with very thick shellac varnish, and at each application burn out the alcohol over a flame. When the shellac is sufficiently soft press the parts together and hold in position till cool. It will be as strong as before broken. *International.*

Dr. T. P. Hinman applies tricresol to the minute fibres of living pulp-tissue, often so difficult to remove. A heated broach is then used to char the tissue.

Remove the foul silk or cotton from the instrument by laying it between the folds of a napkin, with a piece of rubber-dam placed on the outside to protect the finger and thumb from the odour of a long dead pulp.

S. G. Perry.

Iodoform is an excellent powder for dressing, and experience has justified Mr. Treves's epigram that "the fact that the iodoform is swarming with micro-organisms may disturb the bacterially-minded surgeon, but it disturbs neither the wound nor the patient."

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only, and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

Twelve Months (post free) - - - 14s. od.

Post-office Orders to be made payable at the Langham Place Hotel Office, to G. E. Skliros, 289 & 291, Regent Street W. A single number sent on receipt of seven (penny) stamps.

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VOL. XL.

THE FUTURE OF DENTAL EDUCATION.*

By WILLIAM GUY, F.R.C.S.E., L.D.S. Edin.

The present age is one in which an ever-increasing amount of public attention is devoted to the question of education. Free national elementary education has long since passed out of the category of debateable matters, secondary and technical education are now the battlehorses of reformers, and since it becomes daily more apparent that our once easily maintained supremacy in arts, crafts, and manufactures is seriously threatened by our Continental rivals, our political economists and statesmen are faced by a new problem. They have to determine in what manner and to what extent it becomes the duty of the State to assist in the instruction of our artists, scientists, craftsmen, and artisans, so that the products of their activity may maintain that marked superiority over the productions of other countries, which can alone secure for them the markets of the world. A step in this direction has indeed been taken, and local authorities are empowered to allocate sums from the Residue Grants, in aid of technical Education. The good results are probably hardly equivalent to the outlay, and in the scramble for the cash it is to be feared that some bodies manage to participate, whose rights, *qua* technical education are, to say the least, shadowy. The

* Read before a Conjoint Meeting of the Odonto-Chirurgical Society of Scotland and the Scottish Branch of the British Dental Association, Edinburgh, 11th February, 1897,

time, however, cannot be far distant when considerable sums will be set aside by Government to assist and foster technical education of all kinds.

Whether any Government would regard the technical instruction of dentists as coming under their purview, or calling for their assistance or supervision, may be an open question; it is one to which most of us would expect a decided answer in the negative. This much, by way of preface, to justify the assumptions with which I am prepared to start, that educational reform and advance "is in the air," and that it behoves us, a body of scientific men, profoundly interested in the methods and means adopted, for imparting to the entrants to our profession the best theoretical instruction obtainable, and the highest possible degree of technical skill and dexterity, that it behoves us, I say, to consider how far the means presently at our disposal are adequate to the purpose in view, and whether in any respect they call for revision, improvement, extension, or reform.

With regard to the manner in which any alterations might be brought about, we must remember that the controlling influences are the Imperial Legislature, the Medical Council, the Licensing Bodies, and the Schools. Of these, the first two are likely to maintain an attitude of non-interference, or at least are unlikely to initiate any reforms. As the necessity for reform arises, it is therefore with the two last that action must originate, and it may, if I may venture another prediction, be safely assumed that neither of these is likely to move, unless impelled by a considerable weight of professional opinion. In other words, as all history teaches, reforms have always to be wrung from governing bodies, and while those who ultimately grant them are hailed as benefactors of their species, those who in the first instance suggest them are usually condemned as pestilential agitators.

Let us consider *seriatim* the stages of a dental education.

It begins with an examination, the Preliminary in general education. As a number of blockheads contrive to pass this examination, we are probably doing no one an injustice if we assume that the standard demanded of candidates by the examiners is not a very high one. It seems to my mind impossible that any lad of 15, who proved incapable of passing his preliminary examination, could, by any rare late blossoming of talent, develop into an intelligent dentist. The preliminary serves its purpose sufficiently well, it acts as a fairly efficient barrier in preventing a few hopeless dunderheads commencing the study of a profession ; as time goes on, more uniformity among the tests which are accepted as equivalent to it will be insisted on, and in the nature of things we may expect to see the standard of knowledge requisite to pass, rising rather than falling. I am inclined to look favourably on the preliminary, and content to leave any change to time, and the examining bodies.

We come now to the apprenticeship. This must remain. In my mind there is no doubt that it is much more to the advantage of the student to pass his term of apprenticeship with a reputable and conscientious practitioner than in a hospital. He may learn the technicalities as well in the latter, but an apprentice learns more than the niceties of his craft, and many a man now eminent in his profession will admit that he owes much to the sometimes rough, but always wholesome, schooling and discipline of his master's workroom. Where a master is able and willing to teach, and a pupil apt and anxious to learn, progress is made rapidly. When master and pupil alike shirk their duties and obligations to each other, the master's and apprentice's time is wasted. On the whole, however, the system of apprenticeship has been found to work admirably, and I trust it may be retained. I am sure it would be perennial if masters would but bear in mind and act upon these words of the philosopher Locke—

"The great work of a governor is to fashion the carriage and form the mind, to settle in his pupil good habits and the principles of virtue and wisdom, to give him, little by little, a view of mankind, and work him into a love and imitation of what is excellent and praiseworthy, and in the prosecution of it to give him vigour, activity, and industry."

The question now arises, how much of the time should be allotted to mechanical work, pure and simple, and how much can be spared for the pursuit of knowledge, and preparation for examination? I know well I shall be met with the answer that three years is not too much to spend in acquiring the mechanical art; to this I shall readily assent myself. But we must look at these matters from different points of view, and I hold that all through his apprenticeship the student should be studying as well as working. It is a serious matter to cut off a lad from bookwork and lectures entirely, for one, two, or three years; his knowledge gets rusty, he acquires new information less readily, and his memory becomes less serviceable. After the first flush of enthusiasm, which he feels at his emancipation from the pedagogic rule, begins to fade away, a time comes when he feels that his life is not quite full enough. Onward! must ever be the motto of youth. Progress at mechanical work is not sufficiently rapid to fulfil his aspirations, there is a want in his life—that want is the want of study and instruction, with the concomitant sense of advancing intelligence and enlarging mind.

I would, then, have the student register as a dental and medical student. I would have him, if he intends to take the L.D.S. alone, pass his first professional examination before he enters at either a general or a dental hospital. And here, before discussing how the time of study may be most profitably spent, I shall pause to consider a matter of the highest importance. None, but those who are wilfully blind, can fail to see that the profession and the public alike are beginning to attach more and more importance to the possession by

the dentist of a medical qualification. It is idle to advance the statement that in the time at his disposal the dental student can do no more than acquire a modicum of knowledge of the things specially pertaining to his art. This is true enough when applied to lads whose brains, having lain fallow three years while they toiled at the bench, come up and cram their whole professional education into the two years which should be devoted to hospital practice and special classes. If it is impossible for the student to do more in the time, the remedy is obvious, he must take more time. One thing is as certain as that the sun will rise to-morrow, the number of dentists who will seek a medical as well as a dental qualification will go on growing from year to year. Various causes will contribute to this result. Love of knowledge for its own sake, and the hope of satisfying the instinctive cry for "Light, more light;" will actuate many, and at least as many will be moved by ambition, and a desire for increased social consideration. Whatever the motive, the object is undoubtedly a worthy one, and hardly needs any extended recommendation at my hands. But I should like to draw attention to some powerful arguments in favour of the medical qualification for dentists which have been advanced elsewhere. In the report and prospectus of Guy's Hospital Dental School 1896-97, I read on page 8 —

"The establishment of the dental school seemed desirable, as affording opportunities to dental students of acquiring a knowledge of dentistry at a large dental hospital in connection with a well-known school of medicine and surgery. It was thought, moreover, that such an association would tend to induce a greater number of dental students to become qualified surgeons."

On page 31 I read—

It is often said that the training for the L.D.S. is all that the dental surgeon requires; but dental surgery is no exception to the tendency of the day towards wider education, and whilst it is of paramount importance that the highest manipulative skill should be acquired by the student, he is at the same time recommended to use his best efforts to obtain the Diploma of the Conjoint Board in addition to the L.D.S.

These are stronger words than any I should have myself ventured to use unsupported. It may be said we might expect the authorities of a great medical school to advance these views, they want grist brought to their mill ; if that be so, let us turn to a body against whom such an objection would be invalid. I mean the Governors of the Dental Hospital of London. In their calendar, 1896-97, I find, under the heading, "Advice to Students," the following, on page 9—

"So constantly do those who have proceeded for the dental diploma alone, regret that they have not taken the conjoint diploma also, that students are advised to proceed, when possible, as intending to take the three qualifications. Such a course necessarily incurs the expenditure of both more time and money, but the student is amply repaid by the better professional status he ultimately obtains."

An object lesson to the students of the school is supplied by the list of consulting dental surgeons, assistant dental surgeons, and demonstrators, 23 in number. Of these 21 possess a medical qualification, and it is perhaps worthy of note that they are throughout the rules referred to as the medical officers. That the advice tendered to their students has not fallen upon deaf ears is proved by another list at the end of this calendar. It is a list of former pupils of the Hospital who have obtained a dental diploma. The names given number 600, of these 120 have a medical qualification, or 20 per cent.

I should like here to quote to you some remarks made by Professor Crum Brown in his inaugural address to the Royal Medical Society delivered in October of last year. He said—

"While in its aim and its moral and physical foundation the healing art is one, in its applications there must always be variety. No man in practice can afford to be ignorant of any branch, but no man can attain to the highest proficiency in all, so that if the highest proficiency is to be attained, some must devote themselves specially to particular lines of practice. He goes on—I do not intend to enumerate the various specialities ; indeed, their number must vary with varying conditions. Their distinctness depends not on any pathological difference, but rather

on the use of special methods of diagnosis and treatment suited to the anatomical peculiarities of various organs; the contriving, perfecting, and using the instruments and apparatus required for the application of these special methods, as well as the devising the methods themselves, both require, and produce, the special skill of the specialist, and his special knowledge comes in quite a similar way. With this special knowledge and skill, the specialist must, of course, have all that is essential to the general practitioner: the one has to be added to, not exchanged for, the other."

The late Sir John Tomes, in an address which he delivered at the International Medical Congress of 1882, said—

"My strong advocacy of the special must not, however, be interpreted as indifference to medical qualifications. I would give every encouragement to the attainment by students of the latter, not, however, as a substitute for, but as a supplement to, the dental degree. Educationally the relations of the membership to the dental licentiate-ship may be regarded much in the same light as are regarded the relations of the fellowship to the membership. This view of the position of the two qualifications will, and indeed does, take effect in certain appointments. In many of our hospitals, although the membership of the College of Surgeons is a full qualification for practice, the governing bodies require that its surgical officers shall be fellows of their college. And when the fellowship of his college is required of a candidate—provided the fellowship betokens a higher degree of surgical knowledge than the membership—it may justly be required of the dental candidate for office that he shall possess the membership in addition to the dental license of his college."

On October 1st, 1896, at the opening of the new buildings of the Royal College of Dentists, Ontario, Professor Thomas Fillebrown, of the Dental Department, Harvard University, said—

A question had arisen—"Is dentistry a speciality of medicine or is it not?" He believed it was. Dentistry was one of the first specialities of medicine. He further said—"To make it practical for medical schools to include dentistry in their courses of study, some changes must be made in the present plan of the study of specialities. When medical education is organised upon the plan proposed, and each student shall be required to be informed in all the principles of medicine, and shall have opportunities to perfect himself practically in some one speciality, then will dentistry assume its proper place. It will be found that it will take quite as much practice and classical observation for an ophthalmologist or a laryngologist to acquire practical ability as for a stomatologist, and the seemingly well-grounded objection to making dentistry a part of medical instruction on account of its essentially practical nature will disappear. When this principle is fully recognised, and teaching is arranged to conform to it, all difficulties as to the medical education of

dentists will vanish. Shall our medical schools educate dentists as medical men and graduate them as such? Professional men say yes. Well-informed public opinion says yes. A large number of the dental profession have declared themselves in favour of it, and every friend of higher education and skill admits its desirability. Thus all the signs of the times point to the medical standing of dentistry. Medical schools should claim it as not only their duty, but their right, to include dentistry in their instruction. They should reclaim dentistry from the custody of partial culture, as medicine not many years ago reclaimed surgery from the ignorant practice of the barber and blacksmith."

Taking up, then, the position that some brain work as well as manual work must be performed by the dental student during his apprenticeship, and that many students will endeavour to take the additional medical and surgical qualification, it becomes requisite and necessary to point out the manner in which the student may employ his time to best advantage. I have gone carefully through this matter, and as the result of my consideration, I proffer now schemes of work which present orders of study conformable to the requirements of the Examining bodies, and which might, I think, be compassed and carried out without the exercise of more than ordinary diligence and intelligence. The classes to be taken during apprenticeship would really encroach very little on the time of the apprentice, and a lad anxious to work would easily make up the loss of time to his master which his attendances at classes would entail.

In sketching out a curriculum, I shall endeavour to frame it so that it would be practicable in our own schools.

Dealing first with the student who seeks the dental qualification only.

Apprenticeship 3 years.	{	1st Summer—	
		1st Winter—Chemistry,	Practical Chemistry.
		2nd Summer—	
		2nd Winter—Anatomy.	Dissections.
		3rd Summer—	
		3rd Winter—Physiology.	Dissections.
		Pass 1st Professional.	

Dental Hospital and
Dental and Medical
Classes 2 years.

- 4th Summer—Dental Hospital. Dental Surgery. Materia Medica.
 4th Winter—Dental Hospital. Dental Anatomy. Surgery. Hospital Practice and Clinical Surgery.
 5th Summer—Dental Hospital. Dental Surgery. Hospital Practice.
 5th Winter—Dental Hospital. Medicine. Clinical Medicine. Dental Mechanics. Dental Anatomy. Lectures on Gold Filling, Metallurgy, and Dental Materia Medica.

Pass Final,

The student who seeks the triple qualification in addition to the L.D.S. has undoubtedly a more arduous task before him ; and I now shall try to indicate how it may be done.

Apprenticeship
3 years.

- 1st Summer—Physics.
 1st Winter—Chemistry. Practical Chemistry.
 2nd Summer—Elementary Biology.
 Pass 1st Examination.
-

- 2nd Winter—Anatomy.
 3rd Summer—Dissections.
 3rd Winter—Physiology. Dissections.

4th Summer.—Histology. Dissections, Dental Hospital. Dental Surgery.
 Pass 2nd Examination.

4th Winter.—Pathology. Materia Medica. Dental Hospital. Dental Anatomy. Surgery. Hospital Practice and Clinical Surgery.

5th Summer.—Midwifery. Hospital Practice and Clinical Surgery. Dental Surgery (2nd course).

Pass 3rd Examination.

5th Winter.—Dental Hospital. Dental Mechanics. Medicine. Clinical Medicine. Hospital Practice. Dental Anatomy (2nd course). Special Classes on Gold Filling. Dental Materia Medica, and Metallurgy.

Pass Final Dental.

6th Summer.—Clinical Medicine. Medical Jurisprudence. Insanity. Practical Midwifery. Eye Diseases. Dental Hospital.

6th Winter.—Hospital Practice. Dispensary. Fevers. Vaccination. Dental Hospital.

Pass Final for Triple Qualification.

These programmes certainly look rather formidable. I anticipate some of the objections that will be raised. It may be said that the time of the apprentice is too much encroached upon. I make reply that the common practice now is to run the last year concurrently with classes which are here spread over the three years. As things now are, the apprentice has least time at the bench during the year he would most profit by assiduity thereat. The student who begins his special classes with his first examination behind, instead of before him, has an advantage which cannot be overestimated. He will also have more time to devote to the practical part of his speciality, and to put in practice at the Dental Hospital, the art he has learned in the workroom. I feel convinced that the general adoption of the course I recommend for those desiring the L.D.S. only would be fraught with many advantages. The classes seem numerous, and at first glance it is true that they seem to take away much time; but I must ask you to remember that for four months in the year there are no classes, and the pupil can devote himself entirely to the workroom during those months, while, in addition, the first programme gives the bench an undivided claim on the summers. Then it must be borne in mind that some of the classes meet not daily, but twice or even once a week, and that is the case of some of the special ones, the hours do not infringe on the day's work, being either 8 a.m. or 8 p.m.

When I come to consider the case of him who seeks the additional qualification, I am bound to admit that he has set himself a hard row to hoe. Still the thing has been done, can be done, and will be done again. It will be said that only picked men and ambitious men will be found to face such a task. Be it so, then; these are the very men I want to see in the profession. No man is likely to set himself such a task, no parent is likely to set his boy such a task, unless indications prompt him to the belief that the brains, the

courage, and the lasting power to do it are there. All who would put hand to such an undertaking should look well to their equipments, and count well the cost before accepting the contest.

In discussing this and other matters with Mr. Charles Tomes, he said that he thought in London the extra year's study now required for the double qualification, and the increasing stringency of both the Medical and Dental examinations, would perhaps diminish the number of men going in for both, a contingency he viewed with regret; that, nevertheless, both he and the Dean of the Dental Hospital of London, Mr. Morton Smale, always strongly urged all who could, to do so. For myself, I have a lively belief in the capability of the student to move with the times. I do not think the task so hard as it looks; but I do not for a moment deny that its accomplishment calls for brains, pluck, time, and cash—a little of each.

Passing now from students to teachers, I should like briefly to review the situation. As regards the general Medical Classes and the Clinical Instruction, the keen rivalry between schools and teachers here, in Edinburgh, may be relied on so to act, as to give the student of the future, what his comrade of to-day enjoys—a fair and ample choice among a galaxy of teaching talent. But as regards the dental side of his education, the Dental Hospital and School has no rival, the student therefore must take the goods the gods provide; and if he would study at Edinburgh, the Dental Hospital and School must be the scene of his labours. Let me say at once that the educational pabulum he will there receive is both abundant and good. But where there is a monopoly, the keen spur of competition is wanting, and it is therefore that I view the growing school at Liverpool and the new venture at Newcastle with some degree of approbation. They must take some students from us, but they must also have

some effect in keeping our teaching up to the mark, and stimulating it to advance. I shall mention the points in which the dental education of the future may be, I think, fuller and completer than that of to-day.

First, I think less use will be made of instruction by lecture. For the instruction now so imparted the student will depend more on approved text-books. Personal teaching will take more and more the form of demonstration, with running comment, or question and answer. Not only the lecturers on special subjects will resort to demonstrations. The ordinary members of the staff of any and every dental hospital will have it impressed upon them that they have a duty to the students, second only to their duty to the patients; and when they realise that on the manner in which they perform that duty depends the prosperity, perhaps the very existence of their school, they will not be slow to perform it with enthusiasm. In our Infirmary every surgeon and physician is every day teaching, demonstrating, operating, holding clinics, or giving bedside lectures and instruction. But to get men who can do this we must train them to do it as our medical friends do. With them, a man slightly above his fellows is soon singled out, and made an anatomical prosector, a class assistant, a demonstrator. He begins to teach what he has learnt, almost as soon as he has learnt it. Thus he acquires the art of teaching; and when in due time he commences lecturing extra-murally, or obtains an hospital appointment, he has learnt the art of marshalling his facts, of presenting his conclusions in an intelligible form, of addressing his students fluently and coherently. If we are to have a supply of men who can do the like, coming on, we must train them in the same way. As things are, but one man at a time gets a chance of learning to teach, the house surgeon for the time being. We should make a demonstratorship in the stopping room, or extracting room,

or workroom, a post of honour, one to which only the cream of our students need aspire, and one which would, like an anatomical demonstratorship or a special clinical clerkship, confer a distinct *cachet* on the holder. We should have, I believe, a number of those going in for the triple qualification keeping in touch with the Dental Hospital by holding such appointments during their last year of medical study. Such men are of immense value. They have not had time to forget the troubles that in their own case beset the path of learning, or how they surmounted them. They know what it is the student knows, and what he does not know, and come to his rescue at once when he is in a difficulty which they themselves had to overcome but yesterday, as it were. While they are helping on the junior students, the staff have more time to devote themselves to the arrangement of short lectures and practical demonstrations on the more advanced branches of their art and science. These lectures and demonstrations should be given, not at the ordinary hospital hour, when the students are already occupied, but in the afternoon. Say there were two per week during the session, a staff of eighteen acting in rotation would surely not find this an insupportable tax on their time. I am loth to cast additional burdens on students, but I think the curriculum would be improved by making instruction in practical Dental Histology and Dental Materia Medica compulsory. The ordinary hospital practice should include a course of instruction and training in the properties, dangers and administration of anæsthetics of all kinds, and the proper treatment for any attendant accidents, complications, or ill effects. As regards the teaching of the mechanical part, it is, of course, impossible that the apprentice should have any opportunity to work in the mouth. Not till he comes to the hospital does he get a chance. He ought to get every chance there, and all the finest and subtlest resources of the pros-

thetic art should be made familiar to him by demonstration, exposition, and practice, so that he may become an Artist. There should be no need for any professors to advertise their terms for lessons to licentiates in crown and bridge work.

To conclude, we have the Examinations to consider. Here I think the tendency will be in the direction of greater stringency, particularly in the practical portions of the examinations. I am at a loss to understand the recent action of the London College. They make a step forward by dividing their examination, and a big step backwards by striking out *materia medica* and medicine from their curriculum. Their action has not been confirmed yet by the Medical Council, and I fervently hope that body will withhold its consent to the proposed mutilations.

A good deal has been said and written about the need of higher qualification for dentists. I cannot admit that the need exists; there are plenty of higher qualifications, but they must be sought *via* the portals of the existing Corporations and Universities. I am not aware that any movement aiming at a degree for dentists has ever gained head in this country, but certainly very powerful arguments might be adduced in favour of such a movement. Perhaps a golden opportunity was missed while the Universities Commission was sitting. That body might possibly have been induced to believe that dentistry had as much claim to rank as an examination subject for a science degree as agriculture, or public health.

One last word. I have brought my thoughts and opinions on these matters before you to-night, not because I had any great hope that my ideas would meet either with general approval or general acceptance among you. I knew well that the subject was one, in its very essence, of a contentious character, and one on which the opinions of most of you were likely to have passed from a state of flux into a cry.

stalline form. And so, in the hope that I may elicit, and perhaps profit by the exposition of, your opinions, I have spoken my own.

INAUGURAL ADDRESS.*

By W. DYKES, L.D.S.I.

Gentlemen,—In the first place permit me to thank you for conferring upon me the highest honour you as a Society have it in your power to bestow.

I am aware of the fact that I have a difficult position to fill,—following as I do in the footsteps of your late President, Mr. Whittaker, with his excellent opening address; my position is rendered still more difficult from the fact of that address being followed by Dr. Jones' paper on Sterilization,—since then several of you had the pleasure (which I am sure it was) of listening to Mr. Champion's Presidential address at the meeting of the Odontological Society. Again at the presentation of prizes you had a pleasing address from your esteemed friend and well-wisher, Professor Lund, and on that occasion also, Dr. Wilson, in proposing a vote of thanks to Professor Lund, gave us a resumé of the history of the introduction into Manchester of Lister's Antiseptic treatment, so that, taken as a whole, I feel like Othello that "my occupation is gone."

However, in going over a wide field of thought I could not help but be struck with the great changes that have taken place in the Dental world since I was first induced to join its ranks.

* Read before the Students' Society of the Victoria Dental Hospital, Manchester.

It is sometimes advantageous to take a retrospective view of whatever one is connected with, well, it is only by doing so that we get a thorough knowledge of the advances that have been made. At that time any one could add "Dentist" to his name on his door-plate, and no one seemed to think it derogatory to advertise, viz., "Best artificial teeth inserted without extracting roots, or causing the slightest pain; articulation, and mastication completely restored," or something to that effect, each one as jealous of the other as it was possible to be. If one considered he knew more than his neighbour, he was afraid lest his opponent should get to know, in fact the less they knew the more bigotted and bombastic they became. Men, whose whole knowledge of dentistry consisted in the inserting of artificial teeth, and who looked upon it merely as a means to an end, viz., piling up the almighty dollar.

Unfortunately the advertising quack is still with us, and like the poor will always be with us, so long as the public take a delight in being "gulled," but there are exceptions to *every* rule. There were men in practice who knew what good work was, and what it ought to be, who could do it, and did so. These were the men who naturally took a pride in their profession, those were the men to whom we are indebted for the great strides in advancement the profession has made, those were the men who were not afraid of work, men without *your* opportunities, who became excellent operators, and skilled mechanics; men who thought nothing of building their own furnace, who if short of plate could take a number of (newest of course) sovereigns, reduce, melt, roll, and construct a denture, and think nothing of it. Apropos of this—at, or about the time I speak of, the late Lord Sherbrook (Robert Lowe he was then), as Chancellor of the Exchequer (at the time he purposed putting a tax on matches), referring to coinage in his budget speech, said that it paid a dentist

better to melt coin than to buy gold. Where he sprung his idea from I do not know, but I am convinced he did not get it from any one that I know.

Some of you may probably consider that I am dilating too much on the question of Mechanical Dentistry, if I am, it is with a purpose ; it is with this view I want to impress upon you the fact that you ought never to lose sight of that portion of your work ; learn to do it thoroughly yourselves, and then you will be capable of knowing when the work is done well by others.

The surgical and mechanical are so much in combination as it were, that it would be, in my opinion, detrimental to the patient should these be separated. I know it is the idea of some people that a separation is desirable, but I hope such a thing will never take place in my day.

I have endeavoured to point out to you the utility of being well versed in the mechanical (at one time it took the lead with many) and whilst advising you to keep it up with the times, which means, of course, going in for Conservative Dentistry, your object of course in getting your diploma, (as no one could expect anything of the kind for extracting a tooth or replacing the same), still when you go in for conserving the natural teeth you will find that it is not quite so easy a task as some would consider it to be. When you examine the oral cavity, you find in a number of instances such a state of matters as to almost make you shrink from facing it. Without a doubt the teeth are deteriorating with each generation, so much so indeed, that on first sight it appears almost hopeless to attempt anything ; caries in almost every nook and corner, and teeth of no stamina or calibre whatever.

I know of a goodly number of cases where nothing of a permanent nature can be done, it is simply a case of patching until the mouth gets more fully developed. It is to be

regretted that just when we have attained proficiency in the conservation of the teeth, that the deterioration should be so great as to leave little or no foundation to work on, as far as filling is concerned. Mark the combination again : you fall back on your mechanical appliances, for if the crown of a tooth or teeth be gone, if the root be good, we proceed to crown it, which to my mind is more to be preferred than a large unsightly filling, even though it should be of gold.

I trust I am not wearying you, but I feel as though I were not doing my duty if I did not give you a word of advice—pay attention to all your studies, to every detail, indeed, connected with Dentistry—learn to manipulate things with skill so that when you are working in a patient's mouth your fingers do not appear to be all thumbs ; you have every opportunity for learning—gaining practice and proficiency ; you have advantages—take advantage of them. On the Hospital staff are a number of men of skill and ability ; get hold of their ideas upon any important question, and by trial you can find out which proves to be the best, and like Captain Cuttle, “ when found, make a note of.” I should make it a point never to trust to memory ; always have your note-book and pencil ready, make the most of your student days—you never know what may take place when you are out in the world. We have an old Scotch saying that “ Can do ” is easily carried. I well remember some time ago listening to a short speech made by Sir John Tomes in which he stated that when he commenced practice he went to a medical friend to acquaint him of the fact and to hope that he would put something in his way if he could. The reply was, “ No, sir, I shall not recommend any one to you for the next six months, perhaps by that time you will have got over your hospital manners.”

Gentlemen, my advice to you is, do not contract hospital manners. On one or two occasions that I have taken part in

an examination my colleague and I arranged to take a number of ways and means into account, one was the reception of the patient, another was cleanliness. I shall say nothing more upon this subject with two exceptions—one student received the patient with his hand in his pocket, whilst another left the tooth in the forceps. I do not wish to detain you longer, but consider it would do you no harm to mention these two facts.

Gentlemen, I wish each and all of you a successful termination to your career as students, and trust that you may be successful in practice and an honour to the Profession to which you now aspire to belong.

EDUCATING THE PUBLIC.—Dr. Bethel would educate the public in dental matters. He suggests that a representative Committee be appointed, that this Committee should place itself in communication with the editors of newspapers with the view of publishing articles written by prominent men in the profession, in popular style. In this way the public would be enlightened from the fountain head, and twelve millions of the American nation would be benefited, each of whom would become a centre of enlightenment in his turn. Dr. Wright, on the other hand, thinks the public knows too much already. He sighs for the days when he practised in Europe, “the patient simply submitted to the necessary manipulation and paid the bill.” When he returned to America he found his patients discussing everything he did for them. They were familiar with anatomy, physiology, therapeutics, methods, and filling materials, and when it came to criticising the bill, he heartily wished that so much intimate knowledge had not been spread abroad.

British Journal of Dental Science.

LONDON, MARCH 15, 1897.

THE MEDICAL AND DENTAL ACTS.

The Council of the Medical Defence Union has just issued its report, which contains a record of useful work done, not only in the defence of individual subscribers who sought its assistance, but also in the interests of the Medical profession in general, whether members of the union or not. In every case in which proceedings were instituted under the Apothecaries Act, the Union came off victorious; the delinquent in each case being fined the full penalty with costs. An unqualified person describing himself as an "oculist and aurist" was prosecuted and fined for assuming titles which implied that he was recognised as a surgeon. In another case, that of an unregistered man who described himself as "M.D.U.S.A.," a conviction was obtained and upheld on appeal, being the first successful prosecution against an assumer of this title. Against this, however, must be placed the mortifying fact that in a similar prosecution in another part of the country, the magistrate had refused to convict, and his decision had been upheld by the Judges of the Court of Appeal. These opposite decisions in apparently similar cases, are most irritating and perplexing, and fully justify the statement by Mr. Justice Collins made from the bench to the effect that the law as interpreted by some magistrates and judges, is "in such a state of fog, that it was impossible to say what were decisions of law, and what were decisions of fact." This is a strong indictment and tends to show that the Medical Acts are not protecting the community in the manner hoped for by their framers. The preamble of the Medical Act of 1858 showed that "it is expedient that persons requiring Medical aid should be enabled to distinguish qualified from unqualified practi-

tioners." Judging from the immense numbers of charlatans practising upon the ignorance and credulity of the poor, and to a certain extent also, of the rich, it is imperative that these Acts should be amended, and the wrong-doer brought to book.

Turning to our own specialty, we find that to a large extent the working of our Act is as unsatisfactory as that of the sister Act. True the Dental Act is a later one, and its powers are more sweeping than that of the Medical Act, yet how often are we mortified to observe some perfectly clear case of unqualified practice dismissed by the magistrate in one locality, while in another case a conviction is obtained. This of course is often due to the way in which the case is handled, as is amply borne out by the recent cases in Brighton, the turn of the tide taking place when the counsel who had made a special study of the Act appeared. Let that be as it may, when the question of fact is without dispute, the question of law ought to be clear and uniform, and it is anything but that at present.

"Can we hope for any amendment to the law at present?" is the question which naturally arises, as we read of unsuccessful prosecutions, and "cancer-curers," and "specialists" of all kinds, from "U.S.A.," and elsewhere, flourishing in our midst. We are afraid that it is hopeless to expect it in the near future. A private bill would stand no chance whatever, and the only hope is to bring an amending bill prominently under the notice of the Government. There was more ground for hope when the Ministry included a medical man, but nothing was accomplished then and the end still seems far off. That it will come sooner or later is certain, and although charlatanism will always be practised and always find plenty of victims, yet in the best interests of the public, the legislature will be forced to rule that those unfitted to judge for themselves in matters of health and life, shall be protected at least from the blatantly aggressive quack. In the meantime we congratulate our Medical brethren on the cases they have won in the Courts. They, like ourselves, ought to push their Act to

the utmost limit in order to have those limits definitely settled. We have considerable power in these Acts if used cautiously, skilfully, and in the right time and place. As we have often remarked before, let us while waiting for better things, not neglect those weapons we possess already forged to our hand.

THE RECENT PROSECUTIONS AT BRIGHTON.—In our last issue a correspondent calls attention to what he thinks is an inaccuracy in our leading article, in which we said “several of the cases were dismissed or adjourned.” He goes on to point out that three cases come under this heading. A standard dictionary gives “several” as meaning—among other synonyms—“more than two.” So we think we may fairly claim to be excused from the charge of inaccuracy. But we are very glad to publish his interesting letter, as it bears out to the full the contention so frequently urged in these pages, that no prosecution should be entered upon unless the case is absolutely complete. No wonder that the case against Foley was dismissed if, as our correspondent states, “the witnesses had not been attended by him, and *had never seen him until he appeared in Court.*” We cannot hope to see successful prosecutions if this sort of thing happens. There is no doubt, too, that Dinjian is being “covered,” and it seems to us a clear case for the General Medical Council to take action upon.

SOCIETY DENTISTS’ ENORMOUS CHARGES.—In an article in the *Rocket* the credulous public is asked to believe that “Society dentists”—whatever that may mean—make annual incomes of from five to twelve thousand pounds. Society women, we are told, pay from twenty to fifty guineas annually to have their teeth examined and “slightly tinkered with,” while a common bill for a set of false teeth is from two to three hundred guineas. Happy Society dentists!

DENTIST TO BOARD OF GUARDIANS.—We are glad to see that the Southampton Board of Guardians have appointed a dentist, at an honorarium of ten guineas a year.

DO TEETH DECAY ON THE LEFT SIDE OF THE MOUTH MORE THAN ON THE RIGHT?—Dr. Whistlar asks this question in the *Ohio Dental Journal* and answers it, to his own satisfaction, in the affirmative. He brings statistics from examination of crania in the Museum of Harvard University, from ten thousand cases examined by Magitot, and from personal experience. The conclusion he arrives at is that decay is more prevalent on the left side and in the upper jaw. The reason he brings forward to account for this alleged phenomenon is that people use the right side of the mouth in mastication more than the left. Why they should do so he leaves a mystery, and we can provide no clue to the solution of the enigma.

PYORRHŒA ALVEOLARIS AND SYPHILIS.—A short time ago we drew attention to an assertion made by Dr. Foster that he rarely saw a case of consumption which was not associated with pyorrhœa. Dr. Matlack in an article in the *Dental Register* writes to show that there are some cases of pyorrhœa, the origin of which is syphilitic. We know very well that syphilis is a well recognised cause of inflammation of the periosteum. This inflammation when acute causes thickening and softening of the periosteum, loosening of its connection with the bone, and serous or purulent effusions between it and the bone, all of which are symptoms in pyorrhœa. Dr. Matlack having examined the mouths of twenty-three syphilitic patients, found that eleven of them had true pyorrhœa. The attending physicians stated that although these patients were using mercury, yet it was not being exhibited in quantities sufficient to produce ptyalism, so that he thinks the latter cause of gingival inflammation was excluded. It may be that any patient whose system is undermined by syphilis, tubercu-

losis, or any other constitutional malady, may become a sufferer from pyorrhœa, if there is the tendency. More investigations into the subject are much needed.

STUDENTS' SMOKING CONCERT, NATIONAL DENTAL HOSPITAL.—A most enjoyable Concert took place at Frascati's Restaurant on the 13th of last month, Mr. T. G. Read being in the chair. The programme was a long and varied one, and seemed to be fully appreciated by the assembled company. A feature of the evening was the programme designed by Mr. H. Gudgeon, one of the students. The centre of the programme discloses the features of the chairman supposed to be thrown from the optical lantern on to a suspended sheet of rubber dam, while all around are various scenes and appliances connected with the life of the dental student at work and at play. Our experience is that students who work well play well, and this view is borne out when we see the names of the Committee responsible for the entertainment, Messrs. Farmer, Wing, Browne Thomas and Griffiths. We understand that a Ball under the auspices of the Students' Society will take place at the Holborn Restaurant on the 19th instant.

WOMEN WHO PULL TEETH.—The *New York Herald* has an article on the above subject, in which the enterprising interviewer discloses his experiences. One lady dentist admits that she prefers to let her operator do the "pulling." How different is the disposition of Dr. Carrie Wolfsbruck, of New York, "who thinks nothing of pulling thirty teeth in a minute and a half?" Whether from the same or from different patients is not stated. This lady has received a medal for artificial work, and certainly the work is needed after her sanguinary labours. Five girls are studying at the New York Dental School, and are seemingly most enthusiastic. "They clap their hands and exclaim 'How lovely!' over a clever extraction." It forcibly reminds one of the chorus at a theatre. This sort of newspaper article does the "cause of woman" more harm than good, in our opinion.

Review.

Dental Surgery, by A. W. Barrett, M.B., (Lond.), M.R.C.S., L.D.S.E., Consulting Dental Surgeon to the London Hospital, &c. Third Edition. London: H. K. Lewis, 1897.

That a third edition of this little handbook is called for, is a proof that it is appreciated by the class for whom it is written, namely, Medical Practitioners and Students of Medicine. According to a *Pharmaceutical Contemporary* it is a valuable guide and instructor to the pharmacist, when he is called upon to treat dental lesions. Bearing in mind that these readers do not require a deep knowledge of the subject, the book fulfils its mission with credit, on the whole. We fancy however, that the statement that enamel contains four per cent. of organic matter, is not quite up to date; while the indiscriminate use of the words "pulp" and "nerve" are apt to be misleading. It is time that the latter word to designate the tooth pulp were abandoned. The general advice for symmetrical extraction and for the regulation of teeth by extraction, is good. The author on the whole condemns bridgework, but gives the *pros.* and *cons.* fairly. The reason given for the rare occurrence of caries in the lower incisors, namely, their more perfect calcification, does not seem to us a justifiable one. Neither does the reason given for the collection of tartar upon these teeth, namely their escaping friction in mastication. We consider both phenomena are due to the same cause, namely, the bathing of these teeth in the saliva, due to their situation. The author recommends—we consider unwisely—the use of chloroform instead of nitrous oxide gas in the case of nervous girls. Dry lint he considers superior to Matico or Tincture of Perchloride of Iron in controlling hæmorrhage after extraction. The illustrations are copious and fairly good, although the woodcuts of syphilitic and honeycombed upper incisors are upside down, which makes them appear like representations of lower teeth.

The blemishes in the book, however, are small in comparison with its merits. It is readable and sensible, and is well printed and bound.

Abstracts of British & Foreign Journals.

THE SUMS PAID TO EXAMINERS AT THE COLLEGE OF SURGEONS.

The College Calendar for 1895 shows that the receipts under the heading of examination fees paid by the candidates amounted to £18,791 15s. 9d., and that out of this sum £8,739 8s. was paid to the examiners. In other words, the examiners absorbed 46 per cent. of the candidates' fees, which form the main source of the College income. If the total sum of £8,739 were equally divided among the forty-six examiners, each would receive £190. But further inquiry reveals so extraordinary a variety in the distribution of the examiners' fees, that it is worth while to analyse in detail this branch of the subject.

The following table will show, better than any general statement, the amounts paid by the candidates, the sums paid to the examiners, and the percentage of those payments in respect to the latter.

The Sums Paid to Individual Examiners in 1894—95.

Examinations	Number of Examiners	Fees from Candidates	Fees to Examiners	Per centage received by Examiners
Dental	8	£ 882	£ 512	58.2
Public Health	2	234	186	79.9
Conjoint Board (1st and 2nd Exams.)	14	6,371	1,731	27.1
Fellowship (1st Examination)...	8	1,050	684	65.1
Pass Exams. (Court of Examiners)	10	8,371	5,597	66.8

In this table the odd shillings and pence are ignored.

The facts revealed by this array of figures are at first sight surprising, but the analysis of the figures cannot be regarded as complete without further showing the approximate amount which each examiner receives. Here another surprise is in store. An examiner on the Dental Board was paid £64, and

each of the two examiners in the Public Health Examination received £93. If each of the fourteen examiners on the Conjoint Board had been equally paid each would have received £123, but the rate of remuneration is not the same in each class of examiners. For example, the examination fee *per caput* for the examiners in biology is 2s. 6d., while that for the examiners in anatomy is 4s. 8d.

Lastly, we come to the Court of Examiners. The total fees to examiners for the Third Examination were £4,817 9s. From this sum we must deduct the remuneration of the midwifery examiners, who are paid at the rate of 4s. 9d. per head. Multiplying the 824 candidates by 19 we obtain £783 16s. 6d. or £195 19s. for each of the four examiners. Deducting this we have £4,021 10s. for the Court for the membership, or £402 3s. to each examiner, to these fees must be added the Fellowship fees which were £765 9s. or £76 10s. to each examiner, making the total fees paid to each member of the Court £478 13s. Such is the calculation at which we have arrived from the figures before us.

It will be gathered from the above table that a remarkable variation exists in the percentage of fees paid to the different examiners. For example, the duties of the Dental Board are distributed among eight examiners, and the fees absorbed by the latter from the contributions of the candidates amount to 58 per cent. But the examiners individually receive less for their services than any of their colleagues. A study of the above table will also show that the chief source of profit is the examinations of the Conjoint Board. Here the percentage of candidates' fees which goes to the examiners is the lowest of all the percentages in this regard, namely, 27.1. It would certainly be better for the College if all the examiners' fees were based upon this or a similar estimate.

British Medical Journal.

THE MOUTH AND THROAT, AND THEIR RESISTANCE TO PATHOGENIC ORGANISMS.

HUGENSCHMIDT (*Annales de l'Institut Pasteur*, October 25th, 1896) has inquired experimentally into the reason why wounds of, or operations on, the buccal cavity are so seldom followed by infective complications. (1) Bactericidal power of the saliva; Petit, Sanarelli, and recently Albert Mills,

have affirmed this power. Sanarelli, however, used filtered saliva as a culture medium, which contains only 0.15 per cent. organic matter. The author inoculated saliva passed through a Chamberland's filter with cultures of various organisms, and then inoculated gelatine tubes with it directly, and after leaving it at 37 deg. C. for a quarter, one, twenty-four, and forty-eight hours respectively. In other experiments the saliva was previously heated to 60 deg. C.; 37 experiments showed that the bactericidal action of saliva is very questionable, organisms increasing in number rapidly in it. Saliva warmed to 60 deg. C., and thus deprived of the bactericidal principles analogous to those of blood serum, is more fatal to torula and staphylococcus aureus than before, but warmed or not it has no action whatever on sarcinæ, streptococcus, or cholera vibrios. (2) Mechanical action of saliva; Organisms are diluted and swallowed so that the gastric juice destroys many of them. (3) Sulpho-cyanide of potassium was proved in a solution of 0.06 to 0.20 per 1000 to have no bactericidal power. (4) Phagocytosis and chemiotaxis. (a) Experiments with unfiltered saliva: In the mouth and pharynx there is a true lymphatic sac containing crowds of various kinds of phagocytes under the epithelial layer. Leucocytosis here is a physiological act, and migratory cells are constantly passing on to the mucous surface between the epithelial cells. The saliva was proved to possess the property of positive chemiotaxis, which accelerates the accumulation of leucocytes. The clear fluid obtained on the surface of human saliva after standing in test tubes was introduced into capillary tubes closed at one end. The latter were then placed in the peritoneal cavity of guinea-pigs or mice for eight hours, when a plug of leucocytes about 2 mm. long was found in the interior. Saliva which had previously been kept for twenty-four hours in the warm, and which contained more organisms, produced a longer plug, showing that the attractive power increases with the strength of the culture. Saliva of animals (guinea-pigs and mice) attracts the leucocytes of the same animal. Control tubes containing broth cultures of staphylococcus aureus, which exerts a positive chemiotaxis, and normal saline solution which exerts none, were also used. Stained cover-glass specimens showed that the leucocytes in the tubes were mostly polynuclear phagocytes. This positive chemiotaxis becomes very marked if there is an open wound in the mouth, the surface being quickly covered with a white layer of leucocytes. These were proved by stained specimens to be able to swallow and destroy different kinds of organisms

present in the mouth. Normal saliva does not contain streptococci, but if a guinea-pig's mouth is wounded and a virulent culture inoculated into the saliva, chains of streptococci are found in the leucocytes covering the wound after four hours, and healing is rapid. Thus the resistance of the buccal tissues is due to phagocytosis. (b) Experiments with filtered saliva showed that the positive chemiotactic power is due not to the saliva itself, but to its contained organisms. (5) Other agents in resisting bacterial invasion are the constant normal desquamation of epithelium, which dislodges quantities of microbes, which are then swallowed with the saliva, and the diminution in the number of varieties present by the struggle with the common salivary saprophytes.

British Medical Journal.

PRACTICAL LABORATORY POINTS.

By J. G. TEMPLETON, D.D.S., Pittsburg, Pa.

In the dental laboratory it is very important to give particular attention to little things, which, of themselves, seem to be minor. Yet, if omitted, these little things often show much defect in the final results. If called on to give advice to all dentists, and particularly to the younger men in the profession, it would be to get all the little practical points possible, and store them on a shelf in memory that they may be ready for use when needed, like a good friend in time of perplexity and trouble.

A slip noose can be put on the lower front teeth with one hand while the rubber-dam is held down with the other. Get your slip knots ready first, draw them tight, and they will hold on as long as wanted.

To solder a cap on a gold tube attached for an artificial crown, lay the cap on about a tablespoonful of finely-cut asbestos, put the tube in place on the cap, drop in the solder and a little powdered borax, then blow a yellow flame on the asbestos all around the tube till the solder flows. There will be no danger of melting the gold.

In vulcanite work the best results may be obtained by making models one-fourth marble dust and three-fourths plaster; also the same in flasking the case.

To keep rubber dam from running between the teeth and joints in vulcanizing, after the teeth are set in the first half

of the flask plaster, trimmed and varnished, pour water on all the teeth and joints, then mix a small quantity of pure plaster, have it rather thin, and with mixing spatula cover labial and buccal surfaces, also the joints; take up the piece quickly and bring it near the mouth and blow rather sharply against the thin plaster all around, which will force it into all spaces between the teeth or blocks. After this finish, flasking in the usual way, and, if possible, it is well to allow the case to remain over night in the flask before packing.

To keep plaster from sticking to palatine surface of plate just before beginning to pack the case, coat the model with a thick lather of good soap. In finishing the plate, always trim the rim low over the bicusps, leaving it high as can be worn over the cuspids, and the same over the back of the second molars; do not file rim to a knife-like edge, slightly bevel inside of rim at the top extending down about three-sixteenths of an inch.

To make platina and gold plate, melt with blow-pipe pure gold on a piece of platina and roll to the desired thickness, the result will be as good as any you can buy, and you will have saved at least thirty cents. per penny-weight.

United States gold coin is 21 6-10 k. fine. Instead of buying 22k. plate from the supply houses for crown-and-bridge work, get United States gold coin (the older coins not alloyed with copper are best), and you will save dols. 1.50 on each 5 dols. worth. A five dollar gold piece weighs five pennyweights and ten grains.

Much can be saved by the dentist making his own solders. Good formulas are to be found in both Harris and Richardson, also elsewhere. We have for several years used a formula obtained from Dr. Melotte, of Ithaca, N.Y., which is as follows:

Take a United States five dollar gold piece, 20 grains coin silver, 10 grains pure copper, 6 grains English toilet pins; melt the silver and copper together first, after melting this and the gold together, add the pins, flow into an ingot and roll, cut it into small pieces and melt again if it should not roll well first time, this will give a solder a little more than 19k. fine, and flows nicely on coin gold, being the same colour.

This we call No. 1. Now take of No. 1:

No. 1	.	.	.	89	grs.
Coin silver,	.	.	.	7	grs.
Pure copper,	.	.	.	4	grs.

Melt together and roll, and we have a second grade which we call No. 2, and which will flow on No. 1.

To make a still lower grade, take:

Pure gold,	.	.	6 dwt.
Copper,	.	.	2 dwt.
Fine silver,	.	.	1 dwt.

And you will have a 16k. solder. In my practice only Nos. 1 and 2 are used.

Dental Review.

NEW TREATMENT FOR PYORRHŒA.

By Dr. C. H. ROSENTHAL.

In presenting a treatment for pyorrhœa alveolaris I will not attempt to give a scientific basis for my method, since it was conceived of observation rather than a profound scientific research.

Several months ago I had occasion to see a mouth in which I had placed a piece of bridge work three months prior. The bridge consisted of two gold caps on the lower cuspid teeth, sustaining the central and lateral incisors which, as a result of pyorrhœa alveolaris, had been lost. The cuspids to which the crowns were attached, as well as the proximal bicuspid, were also badly affected; so much so, in fact, that at the time I was apprehensive of the result. To my astonishment three months after the operation, I found that the cuspid teeth had regained much of their firmness and an entire cessation of secretions. The bicuspid were still in the same condition as when the work was done. This caused me to suspect that the presence of the metal, which was driven well under the free margins of the gum, and made of 20 c. gold alloyed with silver only, might account for the cure. I at once placed gold bands around the necks of the bicuspid teeth, cementing them firmly in place to prevent riding. In an incredibly short time, about these teeth, too, the flow of pus stopped. I have tried this method in three cases since with uniformly good results. In the most recent case instead of using the gold bands, I use pure silver. This idea was suggested recently at the Johns Hopkins University, where experiments were made on silver disks by pouring pus cultures on glass slabs; where the cultures came in contact with the silver they at once became innocuous. This silver-band

experiment proved by far the most valuable. In the short time of five days there was an entire abatement of the secretions. This led me to believe that it was the silver contained in the gold crown of my first experiments that did the work. The experiments at the Johns Hopkins University show silver to be the best agent of all the metals to destroy pus cultures.

The method of adjusting the bands is just the same as making a gold crown—fitting snugly to the tooth and cementing firmly. None of the metal need be exposed to view, since the only object is to have it in contact with the diseased tissue. I have not removed the bands in any of the cases, and therefore cannot state if there will be a recurrence of the trouble. I am of the opinion, however, that if all the teeth affected were treated in this manner, and the disease entirely eradicated from the mouth, there would be no recurrence. Should this not prove true the bands left on the teeth permanently would certainly be an improvement on pyorrhœa alveolaris.

Dental Register.

PAINS AFTER EXTRACTION OF THE TEETH.

The following are various prescriptions for allaying the severe pain sometimes following the extraction of teeth.

Inhale two drops of amyl-nitrate for three or four seconds, carefully, and follow the inhalation by complete rest for five minutes.

Fletcher's carbolized resin, which is composed of resin carbolic acid and chloroform. The resin may be dissolved in the chloroform to saturation in a half ounce vial, and ten drops of carbolic acid added. It is also an excellent styptic.

Chloroform one part, and tincture of pyrethum. The combination on cotton placed in the socket.

Cleanse out the socket with phenol-sodique, then apply, on a loosely rolled pellet of cotton, the following:

Glacial carbolic acid,	...	5ij.
Liq. potassæ	...	3j.
Water	...	3vj.

M.

Gorgas Dental Medicine.

Alcohol (best)	...	...	3j.
Chloroform	...	...	3ij.
Sulphuric ether	...	...	3 $\frac{3}{4}$.
Gum camphor,	...	...	3ss.
Tinct. opium,	..	...	5j.
Oil cloves,	...	...	3ss.

S.—Apply in the socket on a pledget of cotton.

T. B. Welch.

Camphor	...	...	3j.
Chloroform	...	...	3ij.

M. Apply to socket on cotton.

Chloroform, tinct. aconiti equal parts. Apply to socket on cotton.

Morphia,	...	...	gr. vj.
Tinct. aconiti,			
Chloroform,			
Alcohol,	...	...	aa fl. 3j.

Apply on cotton in the socket.

Relief is often obtained by heat; a dry hop poultice held next the cheek.

Wipe out the socket with a swab of cotton wound around a match stick, so as to remove all blood clots, and syringe the socket well with hot water.

The septum in the socket next the adjoining tooth is sometimes fractured in the effort of extraction, and little spiculæ of bone remain within the socket, keeping up irritation. These should be removed, if large enough to be seized with the tweezers, or syringed out with hot water if too small. Suppress the hæmorrhage as much as possible, and apply to the socket cotton moistened with phenated camphor.

Dr. E. Sjöberg, of Stockholm, offers the following: Among the various remedies which are used for quieting the after-pain of tooth extraction, with or without resection, there is scarcely anything found more reliable than phenylic acid. First try a warm solution, say 3·5 per cent.; inject it into the bottom of the alveolus with an ordinary-sized syringe. Should the pain continue take phenylic acid alone, and fill the alveolus with the help of a syringe, with a bent end. After a few seconds take away the superfluous fluid with a taper end made of blotting paper. Either the pure phenylic acid or the strong solution is used; a napkin, reaching the edges of the alveolus must be pressed to both sides of the

same in order to protect the surrounding parts from excoriation.

Menthol. crys.,	...	gr. v.
Tinct. aconiti,	...	gtt. xx.
Chloroform,	...	q. s. ʒij.

Sig.—Apply on gum over the seat of trouble with a pad of bibulous paper.

Ohio Dental Journal.

Wash out socket by syringing with hot water, to which a few drops of carbolic acid are added, and see there are no loose spiculæ of bone to act as irritants, then introduce cotton saturated with

R.—Menthol,	...	3j.
Chloral hydrate,	...	3j.
Camphor gum,	...	ʒss.
Alcohol,	...	fl ʒj.

When the pain partakes of a neuralgic character anti-kamnia in 3 to 5 grains does, phenacetine in 5 to 10 grain doses will generally give relief.

The face may be bathed with a liniment of

R—Laudanum,	...	fl. ʒij.
Tinct. capsici,	...	fl. ʒss.
Spt. camph.,...	...	fl. ʒss.
Oil sassafras,	...	fl. ʒij.

Dr. I. H. Morgan.

From Dental Office and Laboratory.

THE MEDICAL JOURNALS OF THE WORLD.

In a recent lecture Professor Laboulbene, of the Paris Faculty of Medicine, gave the following statistics as to medical journals throughout the world. In 1880 the total number was 785, distributed as follows: France, 147, of which 95 were published in Paris and 52 in the provinces; Germany 133; Great Britain, 69; Austria 54; Italy 51; Belgium 28; Russia 26; Spain 26; Holland 16; Switzerland 10; Sweden and Norway 9; Denmark 5; Portugal 4; Danubian Principalities 4; Turkey 2; Greece 1. The total for Europe was thus 438. To these must be added 183 for

America ; 15 for Asia ; and 2 for Oceania, making up the grand total of 785. In 1895 the total had risen to 1,380, distributed as follows: In Europe France headed the list with 286, of which 191 were published in Paris, and 95 in the provinces and colonies. Then came Germany with 168 ; Italy with 140, Great Britain with 101 ; Russia with 86 ; Spain with 47 ; Austria with 45 ; Belgium with 31 ; Holland with 16 ; Switzerland with 13 ; Sweden and Norway with 9 ; the Danubian Principalities with 7 ; Turkey with 2 ; Greece with 2—giving a total for Europe of 667. America had 367, of which 343 were published in the United States, 17 in the Republic of South America, 4 in Canada, 2 in Mexico, and 1 in Brazil. To these must be added 25 published in India, 30 in Japan and China—making a total of 55 for Asia. Africa was content with 2 and Oceania with 3. M. Laboulbene points out that these figures, which were supplied by M. Dureau, librarian of the Académie de Médecine, are probably under the real number, as the Académie does not receive all the medical periodicals published throughout the world.

B. M. J.

THE HOUSE WE LIVE IN.

This is the advice of the late J. M. Coates :

“Think deliberately of the house you live in, your body, make up your mind firmly not to abuse it, eat nothing that will hurt it ; wear nothing that distorts or pains it ; do not overload it with victuals or drink or work ; give yourself regular and abundant sleep ; keep your body warmly clad. At the first signal of danger from the thousand enemies that surround you, defend yourself. Do not take cold ; guard yourself against it ; if you feel the first symptoms, give yourself heroic treatment ; get into a fine glow of heat by exercise ; take a vigorous walk or run, then guard against a sudden attack of perspiration. This is the only body you will ever have in this world. A large share of the pleasure and pain of life will come through the use you make of it. Study deeply and diligently the structure of it, the laws that should govern it, and the pains and penalties that will surely follow a violation of every law of life or health.”

Indiana Medical Record.

MONGOLIAN MEDICINE.

Dr. J. J. MATIGNON, an army surgeon attached to the French Legation in China, gives an interesting account of Mongolian medicine, based on information received from a Mongol who is physician in ordinary to the living Buddha of Ourga. Medicine among the Mongols is a monopoly of the Lamas. There is a school of medicine at Ourga, where after a prolonged course of philosophy and Buddhist theology, three years are given to the study of the art of healing. Mongolian medicine is largely derived from Chinese, and, through that, from European medicine as it was two centuries ago. The European strain comes from the old treatises translated into Chinese by the Jesuits in the reigns of the Emperors Kien-Long and Kan-si. Mongols do not dissect, and their knowledge even of the position of the internal organs is vague. The number of diseases is fixed at 440. Works on medicine are very numerous, the chief one being a kind of encyclopædia, entitled *Khiantap*, which is divided into eight sections, and consists of 156 chapters. Their methods of physical examination are like Sam Weller's knowledge of London, "extensive and peculiar." Thus more than 70 varieties of pulses are described. The urine is examined with great minuteness in respect of its colour, smell, and clearness, samples passed at many different hours of the day being used. It is also subjected to a kind of auscultation, being beaten with a wooden spatula, and the vessel then quickly applied to the ear. In the case of rich patients the examination is made more thorough by tasting, a procedure which naturally is made the ground of a special charge. Mongols, like practitioners of former days in Europe, profess to be able to diagnose and treat all sorts of cases on the strength of an examination of the urine alone. The treatment is largely internal, and their pharmacopœia is mainly composed of vegetable substances. Every year in September the students make excursions under the direction of their teachers for the purpose of culling simples, which are dried, classified, and catalogued. Aromatic plants, such as cinnamon and benzoin, play a large part in their therapeutics. Animal and mineral substances are also used, but to a much less extent. The Mongol doctor carries his drugs about with him. Each medicament, dried and triturated, is put into a small leather bag, which is properly labelled; some practi-

tioners carry as many as 300 of these bags enclosed in a larger one or in a box with a spoon to measure the doses. Like the ecclesiastical physicians of the Middle Ages, the Lamas are forbidden to practise surgery, although in cases of crushed limbs or other severe injury necessitating amputation they may direct a butcher how to use a knife. They practise venesection, however, use poultices for the maturation of abscesses, and vigorous massage for the relief of headache and other pains. Recent wounds are dressed with lichen of the steppes or with deer fat. They use counter-irritation by moxas, acupuncture, and ignipuncture, and they practise wet cupping by means of ox horns. Preparations of sulphur and lead are used as applications in diseases of the skin; and bathing in hot sulphur springs in syphilis. Fish's bile is credited with the power of curing cataract. Human bile, and that of the bear and of the hyæna, also frequently enter into the composition of their medicinal preparations. Anticipating Brown-Séguard, Mongol doctors seek to restore vigour to old men by the internal administration of ram's testicles. "Organotherapy" is also employed. Thus, the flesh of the sheep is given for vertigo, that of the antelope for diarrhoea, that of the water rat for nephritis and dropsy, that of the marmot for dysmenorrhœa, that of the beaver for spinal disease and impotence, that of the wolf in diseases of the stomach. They are acquainted with the parasiticide properties of mercury, and use it to destroy the vermin with which their countrymen are generally infected. The most prevalent diseases at Ourga are syphilis and skin affections, but typhus, typhoid, malaria, and other fevers are very common. In treating fevers they purge with rhubarb, and when that fails they give enemata or suppositories, the latter being composed of salt and sugar. They also give nux vomica, sudorifics, and ginger, and juniper is burnt round about the patient. Cholera is treated chiefly by acupuncture under the nails, on the tongue, and around the anus; and as a last resource by burning the pit of the stomach.

British Medical Journal.

THE SYSTEMIC TREATMENT OF PYORRHŒA ALVEOLARIS.

It is the object of this paper to outline a treatment that is prophylactic rather than remedial. We are told that lithæmic conditions are produced by various causes, such as poor assimilation, faulty elimination degenerated condition of the organs involved and improper oxidation of nitrogenous matters taken as food. The question which would naturally suggest itself is, which of these conditions is responsible for the production of the urates? and, if it be poor assimilation, faulty elimination, or improper oxidation, we may have some hope of correcting the condition by proper treatment. If it be a degenerated condition of the organs involved, no human agency can bring them back to their natural state of efficacy, and such treatment as will keep the urates in solution will be about all that can be done. If we have to deal with a perverted condition, such as inactivity of the liver, kidneys or skin, a different line of practice would suggest itself, and it is in these cases I propose to give or suggest a course that seems to me to be rational and easy to follow.

The usual cause of perverted condition I believe to be a torpidity or inactivity of the liver, and it would seem proper to stimulate that organ. A powerful agent for this purpose is mercury, and it is unquestionable that frequent relief from the symptoms alluded to is to be obtained, in a remarkable degree, by occasional small doses of that drug. For our purpose, however, it is not always necessary, nor can it be considered as harmless for prolonged action as another class of agents; I refer to certain classes of natural mineral waters. The principal upon which these waters acts is by producing activity in all the digestive functions, and the waste matters which have hitherto been thrown out as urates by the kidneys, are eliminated in some other form. If we are inclined to doubt the efficacy of these mineral waters on account of the infinitesimal quantity of natural salts held in solution, we should remember that they do not come under the usual rules of dosage. As a proof of the superior force of the saline combinations found in natural springs, I may refer you to the following experiment: If, by careful evaporation, such mineral waters are reduced to their pharmaceutical condition of crystallized salts, they will be found to possess little if any more power than similar salts as obtained by ordinary synthetic processes, as they are met with in every

drug store. They no longer do their work on the same terms as when administered in the original water before they were separated by evaporation. It will therefore, readily be understood how essential to our end it is to employ the natural mineral waters, since what are called artificial waters, however admirably prepared, are simply pharmaceutical products, and are destitute of the very qualities which distinguish the remedies they are designed to imitate.

Concerning the diet, there are certain restrictions which are extremely important. There are three chief elements ranked among matters ordinarily taken as diet, which, in order to obtain the end in view, must be permitted to the patient very sparingly ; they are, alcohol, saccharine and fatty matters. As a result of frequent observation it has been determined that this method, much more than the elimination of meat from the dietary, will reduce the formation of urates. It is not to be imagined that we can confine our pyorrhæa patients to a strict diet, any further than to regard these few important restrictions. But we should caution them to be temperate in their foods, taking plenty of outdoor exercise, and daily baths, with gentle use of flesh brush and Turkish towel.

It is this system of diet and the occasional systematic employment of mineral waters, that constitutes the treatment advised for the purpose of checking calculus disease in its early stages, and preventing the formation of those pathological conditions which are due to an abnormally large formation of the urates, and their consequences.

Dental Practitioner.

DEATH UNDER CHLOROFORM.

We are indebted to Dr. A. O. Grosvenor for the following particulars of the death of a patient whilst under the influence of chloroform on January 6th : The patient was a boy, aged 9, bright, intelligent, and of a highly nervous temperament. Chloroform was given with a view to excise the tonsils, which

were large, and was deemed necessary owing to the highly sensitive temperament—he was not, in fact, able to bear even an ordinary examination of the throat in the usual way. Duncan and Flockhart's chloroform was used pure and fresh, given on a serviette from a drop bottle with plenty of fresh air below. He took the chloroform well without struggling or any irregularity of pulse or respiration. In about five minutes he was semi-conscious, an attack of vomiting came on and he vomited the porridge he had taken in the early morning, four hours previously. He was turned on his side and eased in the usual way to assist the escape of the contents of the stomach, which he did readily. The anæsthetic was recommenced; but in a few minutes he was a second time sick, which brought him somewhat conscious; he looked round, was given a mouthful of water to cleanse the throat, and lay down. He continued to inhale the chloroform quietly for a couple of minutes, when suddenly a peculiar facial expression occurred and respiration ceased at once, after the close or end of a free inspiration with an expanded thoracic wall, followed by a sudden rigidity, similar to an epileptiform convulsion which lasted for about a minute, with dilated pupils. The lips were a natural red colour, shortly afterwards a slight lividity of the lips and mouth occurred; this lasted but a few moments, and was followed by a return of the red colour, which remained throughout the process of artificial respiration and persisted after it was abandoned. At this critical moment the pulse was small and feeble, but soon ceased. Every available means was tried with a view to stimulate and resuscitate the brain and heart, whilst artificial respiration was carried on for a very prolonged period. There was no obstruction of the respiratory track by the enlarged tonsils, mucus, or vomited matters. The patient was never deeply under chloroform, about 3 iij. being used. The probable cause of respiratory failure was a want of blood supply to the medulla, due to the contraction of the arterioles or to the irritation of the vagus, thereby altering blood pressure brought about by the chloroform. No necropsy was made.

British Medical Journal.

Dental News.

BIRMINGHAM DENTAL HOSPITAL.

The 37th annual meeting of the Birmingham Dental Hospital was held on the 5th instant at the Council House. The Lord Mayor (Councillor James Smith) presided, and there were also present General Phelps, Dr. Haynes, Messrs. Walter Barrow, J. Wilkinson, J. Stones, W. Thomas, A. Turner, C. Sims, P. T. Nadin, J. H. Matthews, W. Arthur Addinsell (hon. secretary).

The committee in their annual report stated that the accounts showed a balance in hand of £129 8s. 7d. They regretted to lose the services of Mr. J. W. Wilson, M.P., who since 1887, had acted as honorary treasurer, and recommended that Mr. John Wilkinson be his successor.

During the year the hospital had lost by the death of Mr. Adams Parker one of the honorary consulting surgeons and one of the founders of the hospital. The committee regretted that the subscriptions and donations did not increase, and appealed for greater support from the public.

The report of the Surgical Committee showed that the operations under nitrous oxide had again greatly increased, when compared with last year. The operations under ether had been reduced to the low figure of 31, as low as could be expected without abolishing the use of ether altogether. The extractions without an anæsthetic had also considerably decreased, thus testifying to the appreciation of painless extractions by the poor. The number of fillings and other preservative work of the teeth largely exceeded the high totals of last year. The staff felt that they could not undertake any increase in the work of the hospital until the Governors can provide larger and more commodious premises for the purposes of the institution. Nine students had passed their examinations at the Royal College of Surgeons during the year, and had been granted diplomas in dental surgery. Nine more students have entered during the last 12 months. The number of operations performed in 1896 was 22,595, as compared with 21,127 in 1895, and 6,520 in 1882.

In moving the adoption of the report, the Lord Mayor said the Dental Hospital performed a very necessary work, and a

work that increased in importance every year—(hear, hear). Their city was very much benefitted by having institutions of this character. It was a matter for congratulation that modern civilisation took every means possible to prevent pain. They were likewise all glad to know that the poor of Birmingham enjoyed these blessings, and that they shared the advantages of modern science. The hospital was also most valuable for the students.

Lieutenant-General Phelps seconded the motion, and it was carried.

The Lord Mayor was re-elected president, Mr. John Wilkinson, hon. treasurer, and Mr. A. Addensell, hon. secretary.

In moving one of the formal votes, Mr. Sims said that the Dental Hospital was intended for the relief of the poor. He was sorry, however, to say that at the present time it was more a dental school than a hospital. He wished it to be known that he raised his voice against work being done there to one-third of the patients that ought not to be done in the hospital. He could give numerous instances, and he therefore hoped that the matter would be brought before the General Committee. Last week three patients came to him who had been at the Dental Hospital, having been sent there to have their teeth extracted, and who could afford afterwards to go to a qualified surgeon and have their artificial teeth put in. These patients were all sent to the hospital by unqualified dentists. The people who subscribed to the support of the hospital did so for the benefit of the very poor. A person who could afford to pay from three to five guineas for a set of teeth should not be sent to the Dental Hospital to have his teeth extracted gratuitously.

Mr. J. H. Matthews said that as house surgeon of the hospital, he had often noticed people in attendance who had no business there.

Mr. Addinsell promised that the matter should be brought before the committee.

THE BIRMINGHAM DENTAL STUDENTS' SOCIETY.

A special meeting of this Society was held at Mason College, in the Pathological Museum, Medicine Theatre, and Common Room. There was a large and influential attendance, including some of the leading men in both dental and medical professions. The programme was started by an exhibition of living cases, specimens, and dental instruments and drugs; the latter included exhibits from Claudius Ash and Sons, the Dental Manufacturing Co., the Midland Dental Co., and Philip Harris and Co. The next item was a number of demonstrations, including the following:—The President, Mr. J. Dencer Whittles, a demonstration with the projection microscope; Mr. F. R. Howard, porcelain crown making; Mr. C. A. Leedham Green, methods of administration of anæsthetics; Mr. James Williams, manufacture of porcelain teeth; Mr. A. W. Shedden, photomicrography. This was followed by an exhibition of slides illustrating dental and general pathology, and also including some slides of general subjects. These were shown by the electric lantern, lent for the occasion by the Walsall Electrical Co. There was also an exhibition of pictures by the cinematograph, kindly given by Messrs. Hamilton. A selection of vocal and instrumental music brought a very enjoyable evening to a close.

GLASGOW DENTAL HOSPITAL.

The twelfth annual general meeting of the subscribers to the Glasgow Dental Hospital was held on February 24th, in the hospital, St. Vincent Place, Lord Provost Richmond in the chair. The secretary, Mr. D. M. Alexander, read the directors' annual report. It stated that—

“In consequence of the expiry of the lease of the establishment in Chatham Place, the directors had taken premises at 5 St. Vincent Place. The dislocation of work caused by the removal, the delay in having the new premises completely equipped, and the fact that the public were not quite

familiar with them, had led to a temporary diminution in the number of patients treated during the year. The average number each year had been 6037, while last year it was 4034. These, however, represented 5897 operations in various forms of dental disease, and of these 2072 had been cases of preservative operations. This represented a large amount of suffering which had been relieved or prevented by the professional skill put, by means of the hospital, at the disposal of those unable to provide such skill at their own expense. The dental staff had been supplemented during the year, and consisted of 12 dental surgeons, 3 anæsthetists, and dental house surgeon, presided over by Mr. J. Austen Biggs, L.D.S. The income from students' fees during the year had been £136 9s. Notwithstanding that £282 11s. had been spent during the year on the alteration and equipment of the new hospital, the treasurer's accounts closed with a balance in bank and on hand of over £70. While this was satisfactory, the directors had to regret that there had been a falling-off in the public subscriptions and donations of about £14. The income had been £598 7s. 8d."

The Lord Provost moved the adoption of the report. He commented upon the good work which was being done by the hospital, and remarking that toothache and all the ills flowing from it were about the most insufferable, he said it was a blessing that there was an institution where people unable to pay the fees of a dentist could have the relief they required. The decrease in the amount of public subscriptions was very trifling. He was satisfied that, now that the hospital was accommodated in central premises, it would gradually become better known, and he had no doubt would be better patronised. It was a great pleasure to him to know that students had there an opportunity of studying the various branches of dentistry, and that so much was done gratuitously. The institution only required to be better known among the poorer classes to be taken advantage of to a much greater extent. Mr. J. T. Hedderwick seconded, and the report was adopted. The office-bearers and auditors were afterwards appointed, and a vote of thanks having been passed to the Lord Provost for presiding, the meeting separated.

DENTISTRY PROSECUTION IN EDINBURGH.

In the Edinburgh Sheriff Summary Court on February 24th, Sheriff Orphoot gave his decision on the objections raised to the relevancy of the complaint at the instance of William Broomfield Paterson, 64, Brook Street, London, F.R.C.S.E., L.D.S., hon. secretary of the British Dental Association, with concurrence of the Procurator Fiscal, against Alexander Emslie, residing or carrying on business at 1 Rankeillor Street, Edinburgh, to the effect that he had contravened the third section of the Dentist Act, 1878, in so far as, not being a person registered under the same Act, and not being a legally qualified medical practitioner, he had taken or used a name, title, addition, or description, implying that he was a person specially qualified to practise dentistry by one or other or all of the following methods:—(1) By displaying since October last a signboard at his premises with the words "American Dentistry" thereon; (2) by having a brass plate affixed to his door with the words "Dental Office" thereon; (3) by using on 6th November a business card with the words "American dentistry.—Persons desirous of having dental work done will do well to call at our office, and save at least fifty per cent." thereon; and (4) by exhibiting on the same date a diploma purporting to be granted by the Dental Society of New York, authorised by the said Legislature, and to confer on Alexander Emslie the degree of Master in Dental Surgery. The Sheriff repelled the objection to the competency of the action raised on the ground that the prosecutor was a private person. The objection to the relevancy of the third and fourth charges, to the effect that no locus had been stated, the Sheriff sustained, but he found that the prosecutor was entitled to go to trial on the first and second charges. It was clear to him that both descriptions implied that the person who put them there meant to practise what was described. The case was continued for trial till 4th prox.

On March 4th the trial was resumed. After evidence to prove the existence of the signboard and brass plate had been led, Mr. Morison moved for a nominal penalty, contending that the offence was a very trivial and technical one, without any injury to the public. In reply, Mr. Dewar said it was no doubt a technical offence, but one of a very serious kind, and a statutory offence very injurious to the profession. Not only so, but it might be injurious to the public. He did not think it would do to let the respondent off with a nominal

fine, but he did not wish, at the same time, to be vindictive. The Sheriff imposed a fine of £3 3s. with £2 2s. of expenses.

In the same Court the Sheriff had before him a complaint in somewhat similar terms, against T. Tennant Black, 11 Marchmont Road, Edinburgh. It is alleged that he, not being a person registered under the Dentist Act, 1878, and not being a legally qualified medical practitioner, had taken or used a name, title, addition, or description implying that he was a person specially qualified to practise dentistry by (1) having his name, place of business, and scale of charges printed on cards, one of which he handed to James Crawford, 3 Crichton Place, Edinburgh, on or about 15th February, 1897; and (2) having between 12th and 15th February, 1897 above the door of his premises a gas globe with the words "Dental Office" thereon. The respondent pleaded not guilty, and the case was continued for a week for trial.

GOODMAN'S STRUGGLE WITH ADVERSITY.

At the Bankruptcy Court on Monday, under a receiving order recently made in the case of L. H. Goodman, described as of Wetherby Mansions, South Kensington, it was reported was managing director of Goodmans, Limited, dentists, of Ludgate Hill, New Bond Street, and elsewhere. The liabilities, secured and unsecured, are estimated at £62,000, the assets, consisting chiefly of shares, showing a surplus of £15,030 subject to realisation. The principal assets are shares of £1 each in Goodmans, Limited, which are held by secured creditors as follows:

	Ord.	Pref.
Mr. Wolstan Trubshawe, 6, St. Benet's-place, E.C.	26,663	2,000
Mr. H. J. Watkins, of Charles Taylor & Co., 154, Fleet-street, E.C. ..	—	27,500
Mr. B. Blaeberg, 6 and 7, Grocers' Hall-court, E.C.	—	2,000
Darlot Consolidated Land and Gold Trust, Limited, 19, Basinghall-street, E.C. .	—	2,000

The above shares were hypothecated as security for loans.

In reply to a correspondent as to who is Mr. Wolstan Trubshawe, we find he is a mining and general agent, and is concerned in the following companies as a director :

African Gold Recovery Company, Limited.

Australian Gold Recovery Company, Limited.

Brownhill North (Hannan's), Limited.

Cobar Gold Mines, Limited.

Edmonson's Mashona Company, Limited.

Edwin Bray Gold Mining Company, Limited.

Murchison New Chum Gold Mines, Limited.

In reply to the same correspondent, the Darlôt Consolidated Land and Gold Trust, Limited, was formed in September, 1896, with a capital of £20,000 to carry on the business of investors, financiers, and concessionnaires.

Two of the directors are relations of L. H. Goodman, the full directorate being :

Major-General A. Tulloch, Grange Park, Ealing, chairman.

Ph. Phillip, 6, Grosvenor-street, W., managing director.

C. Goodman, Ivy House, Leicester.

A. Arter, Linden House, Upper-mall, Hammersmith, W.

Rialto.

ACTION ABOUT A LADY'S TEETH.

The case of *Newton v. Cohen* came before his Honour Judge Lumley-Smith, Q.C., in the Westminster County Court, and the claim was for 40 guineas for a set of false teeth for the wife of the defendant.

Plaintiff's case was that the teeth fitted perfectly ; but after Mrs. Cohen returned from Germany she complained that they projected too much, and another set was made. The defendant said the teeth produced sickness, coughing, and swelled the gums.

Mr. Ashton (solicitor for the plaintiff) : Surely the lady can tell us better.

His Honour : Surely the gentleman can see if his wife's gums are swollen. Defendant said it was not a question of the appearance, but they did not fit.

Mr. Ashton. Do you know your wife was sick?

Yes, I saw her. (Laughter).

Mrs. Cohen said she only wore the teeth in Germany, when there were others present, for show, as they were so uncomfortable. The second set was worse than the first, as they would not go into her mouth. She was without teeth for two months, and then she went to another dentist, who made her a perfect set in ten days. She never ate with them, as the top ones fell down and the bottom moved.

Expert evidence having been given on both sides, his Honour said that to go to the West End and pay a high price entitles one to a first-class fit and this was not.

Judgment for the defendant with costs.

It seems that the L. H. Goodman, dentist, of Ludgate-hill, who is now figuring in the Bankruptcy Court, is not the Goodman of the West Australian (Gold District) Trading Corporation. This latter Goodman is going to make a pile of money by letting his windows on Jubilee Day. We haven't heard whether the proceeds are to go to the distressed shareholders in the concern above-named.

Rialto.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

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VOL. XL.

AN ADDRESS.*

By J. HOWARD MUMMERY, M.R.C.S., L.D.S.

Ladies and Gentlemen,—I have been asked to address a few words to the Students of the National Dental Hospital, and I am very pleased to add my congratulations to the hearty good wishes shown by you to-night to those who have been successful in winning the prizes of the School.

I cannot help thinking, however, that the Committee have acted rather cruelly in asking the student's particular *bête noir*, an examiner, to address them to-night. We all know what the student thinks of the examiner, and what perhaps we also thought ourselves, in earlier days. He is a terrible machine that exists only for the discomforture of the student, to ensnare him with catch questions and trip him up in any particular point in which he is constitutionally weak. When he seems to signify approval, he is accused of double dealing and making use of wiles to lure the unwary one to his own destruction. On the other hand, if he maintains a sphynx-like silence, and moves quietly on to another subject, when he is told that the teeth of the carnivora are characterized by a flat grinding surface, and the absence of canines, he still does not escape adverse criticism,—the poor innocent candidate does not know whether he has pleased him or not.

* Delivered at the Prize Distribution, National Dental Hospital.

Perhaps, however, the examiner has still a soul like other men, and is not always quite so black as he is painted, although he has lately added to his crimes by acquiescing in certain alterations in the examination for the dental diploma that will so soon be in force, but perhaps I may be allowed to try and defend him here. A very great addition we think was made to the value of the L.D.S. diploma, by the introduction of the practical examination. This is a test of knowledge that cannot be crammed and is of corresponding value.

The later alterations in the Examination lately sanctioned by the Council of the Royal College of Surgeons are, we cannot but think, another advance in the right direction. The candidate will now be examined in all the subjects of the curriculum, and important subjects to the dental student which have hitherto been very much slurred over, will receive their due share of attention.

I cannot think that these alterations entail any very great hardship on the dental student, as by taking the subjects separately, he will have fewer to keep up at a time, and can devote his attention more completely to those which each examination deals with.

He will now, after his registration as a dental student, have to pass a preliminary science examination consisting of chemistry, physics, and practical chemistry, this being identical with the first examination for the Conjoint Board, and I hope that this fact will be an inducement to many to go a little further and secure the double qualification which we should like to see every dental practitioner possess.

The next, or first professional examination will be a practical one in mechanical dentistry, and an examination in dental metallurgy by written paper.

Metallurgy has not received hitherto, its due share of attention at the hands of the dental student, and of its importance to him there can be no doubt.

The second, or final professional examination will be on the same subjects as the pass examinations hitherto held, with the exception of mechanical dentistry, which the candidate will have already disposed of.

There is a much vexed subject that I should like to say a few words on, and that is the subject of cramming. The greater competition in all professions has led to a more rigid exclusion of the unfit, and a corresponding development of the Examination system, and it is of course the exigencies of the examination that have given rise to cramming.

The medical and dental student has to condense into a few short years an amount of knowledge entirely fresh to him, and that probably ought to occupy him nearly double the time, and the temptation is to cram that knowledge in the manner that will render it most available for examination purposes. I am afraid, however, that knowledge acquired this way is not of the solid type that is best available for after use, and the memory of the well-crammed student is a storehouse of badly catalogued material, and that when his student days are over he may be "like Talleyrand's doctor who knew everything, even a little physic."

Much of the student's trouble comes from the fact that school training is no training for any after work in physical science. I do not believe that the classical training which the schoolmasters all excuse on the ground of its being such an excellent discipline and training for the mind is that which best fits a man for after work in physical science.

While acknowledging the value of a classical training up to a certain point, what is wanted in schools, and I am happy to say is now adopted in some, is a proper training in some branch of physical science where practical work shall be conducted under a competent teacher, a training which shall make the boy reason out the why and wherefore of things and draw his own conclusions. An early training of this sort would be

of immense value to the medical student who now after leaving school and passing his preliminary examination in arts embarks upon a course of study utterly strange and new to him not only in subject matter but in fundamental method. He has learnt what he has acquired, more or less by rote ; he has not exercised his reasoning faculties to any considerable extent, and he attacks his physiology and chemistry in the same way ; he crams up these subjects for examination purposes but never takes a real grasp of the great principles underlying them. If he could only be made to grasp these broad principles his studies would have an interest to him that his usual methods give him little idea of ; “ he looks abroad into the varied fields of nature, calls the delightful scenery all his own.” Let a man try to master his subject, to get a good grip of it, and he will be much better able to meet the examiner than if he comes encased in an armour of crammed knowledge and formulæ. The examiner does not want some particular “ shibboleth,” but to see that the candidate is well grounded in his subject, hence questions in examination papers that make a man think are just as valuable as those that bear on some especially practical subject.

The late Professor Huxley, who was such a great authority on educational matters, speaks very strongly as to the value of an early training in physical science. He says, “ I hold very strongly by two convictions. The first is, that neither the discipline nor the subject-matter of classical education is of such direct value to the student of physical science as to justify the expenditure of valuable time on either ; and the second is, that for the purpose of attaining real culture, an exclusively scientific education is at least as effectual as an exclusively literary education. I need hardly point out to you that these opinions, especially the latter, are diametrically opposed to those of the great majority of educated Englishmen, influenced as they are by school and University tradition

. . . . they hold that the man who has learned Latin and Greek, however little, is educated, while he who is versed in other branches of knowledge, however deeply, is a more or less respectable specialist, not admissible into the cultured class."

What the professional man wants, gentlemen, is not only trained fingers, but a trained mind.

We cannot have knowledge like clothes—ready-made—even they are not usually the best fitting clothes. Knowledge must be acquired and assimilated by the student himself. Cramming is trying to take in ready-made knowledge, and like ready-made clothes, it will not bear hard wear.

We sometimes hear it said, it is no use to ask men such questions, they are so badly up they cannot answer them. Is this quite the correct way of looking at the case? Shall the profession be flooded by men of incapacity because they apply for the diploma? Are the unpromising students to be provided for by a judicious admixture of pap in their food, or are we to try and obtain the best material and fit it for doing honour to the profession? The instruction and examination should not be brought down to the level of the man who is deficient in intellectual power, but he should, if possible, be brought up to the necessary standard, and if he cannot be raised to this, the profession is better without him.

I hope there are not any among the rising generation of students who will be content in after life to drudge on at their practice without taking up some branch of knowledge, and working at it for love,—the labour will be its own reward, and who knows what hidden abilities and even genius may not be evinced in unexpected quarters? Many a man might have shone as a leader in science, but has lost his first opportunity and drifted away from what ought to have been his life's work, and the world is the worse off for the loss of him.

It is too often said that our profession is too limited a one to give scope for much original work, but I do not think we can justly say so.

In how many different directions does it not open opportunities to us.

In microscopy much is being done and much yet remains to be done in the study of histology and development of the dental tissues.

Bacteriology, a science still in its early childhood, deeply concerns the man who has to treat the mouth, and do his best to protect the body from many deleterious organisms that lodge and are nourished there, and concerning the exact nature and mode of dissemination of which much remains yet to be discovered.

Again, electricity and its new development cataphoresis gives an opportunity for study in another direction, and there are many other side subjects connected with the profession that will open up promising vistas to the earnest student. Every one should have a hobby and live up to it, and if it is a scientific hobby all the better.

We are nearing the end of the greatest century, so far as the advancement of natural knowledge is concerned, that the world has ever seen, and the student of to-day has before him the commencement of another, that will, I imagine, far outshine this one in scientific discovery. Much of the past has been occupied in laying the foundation of accurate knowledge and the scientific men of the future will be employed in rearing upon these foundations a mighty temple of knowledge to the building of which I hope it will be the privilege of many here to assist.

COPPER AMALGAM : ITS MERITS AND DEMERITS.*

By J. H. BADCOCK, L.R.C.P., M.R.C.S., L.D.S. Eng.

Mr. President and Gentlemen,—My apology for bringing before you such a well-worn subject to-night is the extraordinary diversity of belief which has always existed, and still exists, in this matter, and the great desirability of some authoritative statement of the real facts of the case. How I think such a statement might be obtained will appear later.

By copper amalgam I mean any amalgam made of pure copper and pure mercury, however prepared. With the details of its preparation I have no practical acquaintance. My experience is gained chiefly from that variety called "Rogers' Copper Amalgam," though I have tried various other makes. I believe that the qualities which I am about to enumerate are common to all varieties. The material comes to us in the form of hard pellets, which, when heated, give off beads of mercury, and after grinding in a mortar become plastic. There is a great difference in the proportions of mercury and copper in every sample, and even in different pellets of the same sample. When one of these pellets is heated, small beads of mercury ooze slowly to the surface in a kind of dew, then, more suddenly, a greater quantity is set free, sometimes with a hissing sound ; and if the heating be carried further, the only result is to burn the copper and evaporate the mercury.

This behaviour suggests that there is a certain fixed proportion of mercury in some sort of combination with the copper, analogous, perhaps, to water of crystallization, and a

* Read before the Odontological Society of Great Britain.

still further quantity, in much looser combination, which is that first given off at a comparatively gentle heat.

Much difference of opinion exists as to the point at which it is best to stop the application of heat when "beads of mercury begin to appear on the surface" or when the whole is driven out. If the first plan be adopted it is difficult to obtain a conveniently plastic mass without the addition of extra mercury, a proceeding which Dr. Black* has found to seriously affect the strength of the filling, and if the second, the mass is so soft that mercury must be squeezed out. The latter has been my own practice, as it enables me to judge of the true proportion of mercury in the resulting stopping. Clinical experience seems to show that the greater the amount of mercury in it, the softer the filling will be, and the faster it will waste.

Dr. St. George Elliott, who devoted much time to the experimental study of amalgams, said in a paper read before this Society in December, 1888: "If the ordinary directions are followed, and the spoon removed from the heat on the appearance of the globules, it will be found that the bricks are comparatively weak. It is better to drive off the excess of mercury by overheating and subtracting, subsequently adding what may be necessary to obtain the proper plasticity, than it is to allow some of the combined mercury to remain in the mass. The bricks on the table which are so weak are those made by underheating the specimens."

Experimenting lately, Dr. Black has found that fillings "made of the soft mass as kneaded in the hand, crushed at a less stress than those made of the same material after it was wrung dry. The average crushing stress of those made soft was 170 lbs., varying about 25 lbs. for the different blocks, while fillings made from the same mass, worked as dry as

* *Dental Cosmos*, 1895, p. 738.

possible, bore a stress of from 200 lbs. to 255 lbs.”*

The amalgam sets in a space of time varying in different samples from a few minutes to a few hours. What regulates the rate of setting, and why is it accelerated by washing the amalgam? After it has set, it may be re-softened by a repetition of the foregoing process. Is this a wise thing to do? Dr. St. George Elliott in the same paper says: “One of the several specimens, both in the specific gravity and breaking strain tests, has been heated and worked over six consecutive times, and I find little, if any, injury resulting.” On the other hand, Dr. Black has made four series of fillings from the same mass of amalgam reheated each time. “Each series of fillings was found markedly weaker than the first. From a portion of the mass all the mercury possible was wrung out, and more added after it had partially set. This seemed in some way to have a very deleterious effect upon the material. The third series of fillings from this portion of the mass crushed at from 30 lbs. to 40 lbs., while the fourth series could be crushed with the foil pliers. . . . This deterioration is sufficient to deter me from making use of any residue of copper amalgam for the future.”†

Suppose the filling inserted by any of the ordinary methods and hardened, let us consider the qualities that it possesses, and the effects produced.

(1) It works smoothly and adapts itself perfectly to every part of the cavity.

(2) *Shrinkage*.—Dr. Elliott, as the result of experiment, found that “the best copper amalgam shrinks four times as much as the silver alloys used.” On the contrary, Dr. Black says: “No contraction was discovered in any of the copper amalgam fillings; even those made very soft showed no contraction whatever. A very slight expansion was generally

* *Dental Cosmos*, 1885, p. 738.

† *Dental Cosmos*, 1895, p. 739.

discovered, but this was too slight to be of importance; in the large majority of fillings it did not exceed .0002 inches. This occurred during the setting of the amalgam, and no disturbance of the margins could be discovered with the microscope.”*

(3) *Alteration of Shape*.—Once set, it never alters in shape in the slightest degree, and the edges show no tendency to curl. It is this great quality which gives it all its value, and which has enabled it to keep a place in our cabinets to-day in spite of its many gross faults. In the words of Dr. Black: “The material is readily adapted to the walls of the cavity, and this adaptation is not broken up by the contraction of the mass in setting, as is the case with other amalgams. When once it has hardened in adaptation to the walls of the cavity, the adaptation is permanent. It does not suffer change of form under stress. . . . These physical conditions give copper amalgam permanence, and fully explain that which has been seen in clinical observation.”*

Put in a copper amalgam filling how you will, soft or hard, wet or dry, carelessly or carefully, it will stay just as you put it in for any number of years, its edges as close as the day it was done, as good as those of the best foil filling—so close indeed that but for experimental evidence to the contrary, one would say that they were in absolute contact. No amalgam made of an alloy can compare with it in this respect. Therefore men, especially young men of short experience, talk of it with enthusiasm.

(4) *Therapeutic Action*.—It is credited with the power of arresting decay by means of its antiseptic action. Its reputation in this respect rests mainly on the authority of Dr. Miller, of Berlin. This gentleman scattered fragments of an old copper amalgam stopping,† and of dentine from teeth

* *Dental Cosmos*, 1895, p. 740.

† *Dental Cosmos*, 1889, p. 923.

which had been filled with copper amalgam on an inoculated gelatine plate ; with the result that the growth of the germs in their immediate vicinity was inhibited. This was also the case with oxychloride, and certain samples of unannealed gold.

He also took freshly extracted teeth with large carious cavities, and after removing *débris* of food and the superficial layer of dentine, inserted fillings of copper and other amalgams. The teeth were then put into a mixture of bread and saliva, and incubated for three days. At the end of this time the fillings were removed with antiseptic precautions, and portions of the underlying soft dentine were placed on a previously prepared plate of sterile nutritive agar-agar. After a period of incubation the plate was examined. Those specimens taken from teeth which had been filled with alloy showed luxuriant growth of bacteria in their vicinity, while in no single instance did development take place round fragments from beneath a copper filling. Mr. Goadby has recently repeated these experiments, and made others, with results, as he will tell you presently, diametrically opposite to those obtained by Dr. Miller. In the face of this conflicting evidence I will only express the opinion that even if copper amalgam does possess some measure of antiseptic action, this action is a factor of no practical utility, and should be absolutely disregarded as being without clinical significance. This opinion is borne out by the following, among others :

Dr. Ottolengui* says : " When copper amalgam was introduced into this country . . . its advocates claimed that . . . it possessed a therapeutic quality in that no carious action could recur in its vicinity. Practice has not substantiated this claim. Copper amalgam fillings from the hands of practitioners known to me as expert operators have come under my observation leaking badly."

* *Dental Cosmos*, 1892, p. 28.

Dr. W. H. Truman says : "I am not convinced that copper amalgam has any more tendency to retard or prevent the recurrence of decay than any other material that makes an equally tight filling. In my judgment its antiseptic properties have not the slightest value."*

Dr. Ames : "These fillings save teeth rather by forming a perfect stopping than by antiseptic effect."†

Mr. Humby speaks of "an erroneous belief that the salts of copper soaking into the tooth prevent any further decay."‡

Dr. Black : "The power of the material in the arrest of caries is in those physical properties, not in any chemical or disinfectant property of the copper or its salts."§

When any material is found to save teeth particularly well, a specific action is claimed for it by its advocates, *e g.*, tin, soft gold, gutta-percha. The reason that these materials, even when inserted into damp cavities with no great skill, arrest decay in the way they often do is, I think, due to the fact that they are easily made to fit the cavity sufficiently tightly to exclude saliva and particles of food, rather than to any specific action. At any rate, I am sure that it is better for the operator to take no account of it, and trust nothing thereto.

It is said by some that on cutting out an old copper amalgam stopping, the dentine underneath is found black and abnormally hard. I have found it hard in such cases when the cavity had originally been prepared with sound, hard walls, though not harder than normal dentine ; but I have never, to the best of my knowledge, met with a case where the dentine showed any sign of having been hardened by the filling, though many hundreds where it was soft and disin-

* *Dental Cosmos*, 1890, p. 477.

† *Dental Cosmos*, 1891, p. 389.

‡ *Transactions of the Odontological Society*, March, 1894.

§ *Dental Cosmos*, 1895, p. 740.

tegrated, in spite of being stained a deep black for some distance.

The discolouration caused by copper amalgam varies in degree, but will be admitted by all. The filling itself turns black or chocolate colour from the formation of sulphide of copper on its surface. Sometimes this salt is removed by attrition, and the grey surface of the amalgam left. Inasmuch as this chemical action also takes place on the surface of the stopping in contact with the cavity walls, these become stained too, and we are all familiar with the excessive and unsightly discolouration which in course of time affects the whole tooth. Moreover the black copper salt formed on the surface of the filling is continually being washed off, and some of it finds lodgment on the surface of the containing tooth and its neighbours in both jaws. So that it is not uncommon to find several teeth blackened to a greater or less degree according to their proximity to a large copper filling. In cases where a great deal of copper has been used, the mouth after a few years comes to present somewhat the appearance of a coal mine.

(5) *Wasting*.—This same chemical action is the cause of the material's most deadly vice, viz., wasting—a vice leading to such disastrous consequences that in the opinion of many it is sufficient to justify the entire rejection of copper amalgam from among our filling materials. This occurs within different periods of time and to a varying extent, but it does occur in every mouth sooner or later. Many theories elaborate with electricity and physics have from time to time been put forward to explain this action, but all, so far as I am aware, without a shadow of proof.

As I am extremely averse to loose and unverified statements, and being no chemist, I suggested to Mr. Goadby that he should make a few experiments with the view of find-

ing out exactly what does happen. This he kindly consented to do, and will presently offer you the result.

Sulphuretted hydrogen is always present in the mouth to a greater or less extent, due to the decomposition of organic matter in the form of *débris* of food, epithelial scales, &c. This, in the presence of a weak acid, acts on the copper, forming a layer of copper sulphide on its surface, and setting the mercury free. The mercury thus set at liberty usually combines with more copper, and thus helps to soften the filling. This is not quite all that takes place, but I will leave the more elaborate details to Mr. Goadby. Under ordinary circumstances this film is rubbed off in eating or washed off by the saliva, and a fresh surface of metal exposed to chemical action. The rapidity of the wasting will obviously depend on three factors (*a*) the density of the filling, *i.e.*, the amount of copper it contains; (*b*) the strength of the solvent; and (*c*) the friction to which the stopping is exposed. The greater the friction, the more quickly the film of sulphide will be removed and a fresh surface presented to the action of the solvent.

Two of the factors, viz., density and friction, were early recognised, and are indeed obvious a few months after the insertion of a filling. The third and most important seems to have been overlooked.

We were taught that copper amalgam discoloured badly, and was therefore only suitable for teeth at the back of the mouth; that it "cupped," or wore down on surfaces exposed to attrition; and that those were its only faults. As we wanted it mainly for the back of the mouth, we cared little about its discolouration, and although its "cupping" on masticating surfaces was inconvenient, it was a comparatively trifling fault, easily remedied. We congratulated ourselves on having found a nearly perfect filling material. What was not taken into account was the action of solvents, and the

positions in which this action would be likely to be greatest. Experience shows most solvent action to occur in positions where decomposing *débris* collects. The result is as follows : In a fairly clean mouth all copper fillings in crown cavities, and others above the gum margin not in contact with an adjoining tooth or an artificial plate, if inserted in properly excavated cavities, never fail at the edges, and generally arrest decay so long as there is any stopping left.

Now these belong to just that class of cavities which may be filled satisfactorily with almost any alloy we like to take, with little discolouration and no wasting. If, however, the filling extend below the gum margin, the case is different.

The gum overlapping the surface of the amalgam protects it from being washed by the saliva, while it holds decomposing particles in contact with it. Whether the secretion from the gum has any solvent action I am not prepared to say. I will take, for instance, the case of an approximal filling carefully contoured and left touching the adjoining tooth at one spot. By reason of the solvent action the whole surface is gradually lost. At first the loss occurs chiefly on the morsal aspect owing to friction in mastication, but in time the approximal surface is sufficiently affected to allow fibres of meat or other food stuff to be forced up between the teeth in eating. This condition will be accelerated if the patient be a careful one who regularly uses floss silk. Now all the evils appertaining to a badly contoured filling result. As the edges of enamel protect the material immediately in contact with them, the contour from being convex becomes concave, and if there be two approximal fillings, the case is so much the worse. Clearance of food becomes impossible, the gum is pressed upon, inflamed, and caused to recede, exposing the neck of the tooth. Moreover, all this time the collection of *débris* stationary against the cervical edge of the filling decomposes, and causes increasingly rapid disintegration of the amalgam.

with which it is in contact. If a probe be passed between the teeth it will be found that the stopping is soft at this point, and gives a peculiar and characteristic sound when scraped, and that the scrapings consist of black sulphide of copper and mercury. As the solution of the filling proceeds, a hollow depression is formed which serves to entrap more *debris*, and so the vicious circle is completed. It is this persistent sticking of food between the teeth that most frequently leads to the discovery of the mischief. Not only is the stopping disintegrated, but the food, collecting on the exposed cervical edge, starts decay in the most difficult and dangerous position for it to occur, viz., above the original cervical margin and entirely under the gum. Frequently these cavities are not discovered until the exposure of the pulp has supervened.

This is no fancy picture, but what must occur sooner or later to every approximal filling made of copper amalgam.

I speak from bitter experience—indeed a great part of my time is now occupied in cutting out copper fillings inserted with every care a few years ago, and in repairing the resulting ravages. Many an amalgam that looks perfect will be found to reveal a large cervical cavity on more careful use of the probe.

In a casual communication made by Mr. Humby to this Society* in 1894, he says: "I can affirm this, that during a practice extending over many years, in no single case were symptoms of failure absent in fillings which came under notice the third year after insertion."

The same evening Mr. Humby showed a number of specimens of copper amalgam fillings where this wasting had occurred, and by his kindness I am enabled to send some of these round again to-night.

* *Transactions of the Odontological Society*, March, 1894.

During the first few years that I was in practice I used copper amalgam in large quantities, and when after a year or two I began to see results, so excellent did they seem that I rarely used any other amalgam. Then a few failures appeared, and these I attributed to accidental causes or my own defective manipulation, and tried to improve my methods, with no better success. At last I began to doubt the material, but I think it was Mr. Humby's casual communication that awakened me to the full extent of the disaster. Still loth to give up my favourite stopping, I tried various means to combat this fatal wasting. One of them was to bring the copper amalgam to a workable consistence by means of the addition of alloy instead of expressing any of the mercury. I found, as others had done before me, that although this improved matters it did not cure them. If one added only a little alloy it did not prevent wasting, though it retarded it, while if one added more, change of form began to appear. The most successful way seems to be to face the copper with an alloy. It is very easy to do this with excellent result in crown cavities. In interstitial cavities this facing becomes very difficult, and is not altogether satisfactory. In a few of my cases the facing has flaked off some time after the filling has been completed, thus rather shaking my faith in it.

Lest you should think me unfairly biassed, I will ask your attention to a few extracts from periodical literature, reflecting American and English opinion for the last ten years. Though copper amalgam had been known to a few dentists in America long before, its general adoption seems to have dated from 1887, and to have been due to its re-introduction by Mr. Claude Rogers. In 1889, Dr. Miller, of Berlin, said *: "I have always had much faith in the preservative properties of copper amalgam fillings, because I have had

* *Dental Cosmos*, 1889, vol. xxxi., 924.

abundant opportunity to perceive the splendid results obtained by its use even when very little care was taken in its insertion."

In the same year, Dr. Russell, of Brooklyn, said,* "Copper amalgam, employed with discretion, is undoubtedly one of the best materials that the dentist can make use of to preserve the teeth." And Dr. S. G. Perry, of New York, expresses himself as follows† : "I think copper amalgam is one of the best materials we have ever had for filling teeth, and all other amalgams are almost laid aside with me."

Dr. Wood (Mankato), Minn.: "There is a class of teeth and a class of cavities (notably those under the margins of the gum) that can be more perfectly preserved by the use of copper amalgam than by the use of any other material known to the profession to-day."‡

Dr. Custer:§ "Perfectly amalgamated fillings with no excess of mercury and properly manipulated, may be used in all positions and conditions of saliva, and be free from waste."

Dr. Osman:¶ "If copper amalgam fillings be worked as I am endeavouring to demonstrate . . . they will stand the test in every way, and become a thing of beauty and a joy for ever."

Dr. Darby:¶¶ "We can all agree that no one thing has done so much harm in dental practice as copper amalgam."

Dr. Coon:** "The majority of those who ever did use it (copper and amalgam) have now discarded it." He also says, *à propos* of certain earlier papers on the subject, "I regard all of the above quotations erroneous and delusory, in

* *International Dental Journal*, 1889, p. 652.

† *Dental Review*, 1889, p. 621.

‡ *Dental Review*, 1889, p. 623.

§ *Dental Cosmos*, 1891, p. 388.

¶ *International Dental Journal*, 1892.

¶¶ *Dental Cosmos*, 1892, p. 999.

** *Dental Cosmos*, 1893, p. 26.

so far as they express confidence in the continuous stability of copper amalgam however prepared."

Dr. Bonwill* speaks of "the celebrated English copper amalgam, which will blacken a tooth and blacken your reputation, and will not last;" and also says† "copper amalgam is the most damnable material we ever had."

Dr. Black‡ "Copper amalgam seems to have failed in the clinical trial that has been made of it in filling teeth."

Taken chronologically, these extracts are instructive. In making this selection from a considerable mass of literature on the subject, my endeavour was merely to single out the most decisive utterances on both sides, and not until I was arranging them for this paper did I notice how significant they are, and how curiously they recall one's own enthusiastic early belief, gradually giving way to disappointment and condemnation.

In reading what has been written upon this subject since 1885, one is struck by the fact that concerning no single point in the preparation or manipulation or qualities of this material is there the least unanimity of opinion. Each writer has some faults to complain of and some virtues to extol, and each suggests his own remedy with equal futility. To-day we are little nearer a universal opinion or practice. In respect of English opinion I have less to offer you, as our subject is scanty. In view of this I wrote to two of the greatest advocates of copper amalgam in this country, men whose reputation for good work is world wide, and whose opinions are entitled to respect in so much as they have given more attention to this subject than perhaps anyone else—I refer to Mr. Claude Rogers and Mr. Boyd Wallis. I asked them to kindly tell me whether they still retained their faith

* *Dental Cosmos*, 1894, p. 405.

† *Ibid.*, p. 830.

‡ *Dental Cosmos*, 1895, p. 727.

in copper amalgam. In reply I received the following letters—

December 9, 1896.

I still have a very high opinion of copper amalgam as being the best of all the amalgams, and when inserted dry, and with as little mercury as possible, I consider it the best filling we have for the majority of back teeth where gold is inexpédient from one cause or another. What you say about its failure at the cervical margin is true in many mouths, but I believe that a large amount of such failures are due to imperfectly prepared edges, or else from moisture creeping in during the process of insertion; when the rubber dam can be used, in approximal and other cavities where this is likely to occur, it should. If we could overcome the colour (and in some mouths the tendency to dissolve away on the surface) we should have the best all-round filling of any. I find it works exceedingly well with osteo mixed in varying proportions according to requirements of the case. If you have not tried this, do so.

Yours truly,

CLAUDE ROGERS.

December 11, 1896.

I think there can be little doubt as to the value of copper as a preservative of the teeth, but copper, like all other filling material, will fail sometimes. To avoid failure great care should be exercised in the preparation of the copper precipitate; that precipitated by iron is the more serviceable and durable, though slower in its action upon the tooth substance than that precipitated by zinc. The precipitate should be thoroughly well washed before amalgamation. I have washed it in hot water over twenty times before succeeding in removing all oxide and all other extraneous matter, and finally in a mixture of spirits of wine and ether, leaving clean, pure copper precipitate behind. After washing the sooner it is amalgamated the better. The commoner copper amalgams in the market which have come under my notice, certainly have not been submitted to such washing, consequently contain matter which does not amalgamate, and which considerably reduces the value of the amalgam as a durable filling, rendering it more liable to the action of the oral secretions, forming more readily the soluble salts of copper.

If you make some fresh precipitate by the iron and zinc method and submit them to the microscope, you will at once see a difference and a still further difference if you compare these with precipitates which have been kept some time. In the fresh condition the precipitates should have a metallic lustre, but if kept for some time they will become oxidised and quite black: my own specimens, though mounted for the microscope in a fresh condition, turned quite black, losing their metallic lustre after a time.

However, I may state that of late I have used either Flagg's submarine where I should have otherwise used copper, or I have lined the cavity with copper foil and filled over it with a high grade amalgam, for I ha

not had time to make the amalgam myself. Some time ago I mentioned this method, and exhibited copper foil specially prepared by electricity, at the Odontological Society.

The only teeth remaining in one case which came under my notice, that of a gentleman 85 years of age, were filled with copper amalgam, and these had been filled over sixty-five years previously by a travelling charlatan who professed to cure all diseases between the teeth and the toes.

With kind regards,

Yours very truly,

C. J. BOYD WALLIS.

To those opinions the highest respect is due. You will note that Mr. Claude Rogers admits all its faults, but lays less stress upon them than I am inclined to do. Mr. Boyd Wallis I understand to frankly confess his want of faith in any of the varieties of copper amalgam now on the market, and unless he can make his own prefers to use an alloy. Individual instances of the longevity of any particular filling material, to my mind are of little value as evidence. A just judgment can only be formed by consideration of its behaviour in the majority of cases.

Mr. Robbins says :* " For some time I have had my faith very much shaken in this material, and use it now only to a very slight extent. . . . The fact has, I think, been now definitely established, viz., that Sullivan should never be used on or below the gum margin."

The conclusions to be drawn from the consideration of this evidence, I think, are : (1) That copper amalgam should never be used in any tooth where staining would be objectionable. (2) That to prevent wasting and discolouration of adjoining teeth it is always advisable to face it with an alloy, and that in the case of interstitial fillings this is absolutely imperative. Its antiseptic qualities are so slight as not to be of any practical value. A greater effect would be produced by a strong antiseptic applied to the cavity. I believe that

* *Journal of the British Dental Association*, 1896, p. 81.

this practically limits its use to deciduous teeth, for the saving of which it is eminently adapted, and to exceptional cases, especially those where it is impossible to exclude moisture. Small crown cavities can be easily and well filled with an alloy alone, while large ones with weak walls, and all interstitial cavities, can be better filled by the combination of alloy and cement, as described by Mr. Baldwin at our last meeting.

Yet nowhere to my knowledge is to be found an authoritative statement to that effect. At our hospitals, to the best of my belief, Sullivan is largely used. Our students enter practice with the same time-honoured belief in the virtues of Sullivan, and buy their experience as dearly as many of us and many hundreds of our patients have bought it. Here and there some individual raises his voice against it, but he is looked upon as not of the faith, an unbeliever, a monomaniac, or as not having the skill and knowledge to use it properly. It is little less than a scandal that after more than half a century's experience of copper amalgam, the subject should remain the debatable question that it is to-day. In the interests of the public and of our profession some canon of teaching should be laid down. Unless I mistake, some years ago this Society appointed a commission to make an authoritative report on the properties of cocaine as a local anæsthetic. Might I suggest that if in the opinion of members the subject is of sufficient gravity, a similar committee should be appointed to investigate and report on copper amalgam. Such a report would carry an authority and produce an effect such as could not possibly be achieved by an individual.

Occasionally we hear it said, by outsiders, of course, that the Odontological Society is more ornamental than useful to the profession at large. It is well sometimes to see ourselves as others see us, and though I do not undervalue for one

instant the very excellent work done by this Society, I think that perhaps it might do still more. The occasional appointment, for instance, of committees to investigate subjects of interest and report thereon ; the properties of a new filling, the advantages of a new method, cataphoresis, for example, would be of the utmost benefit to the profession at large. Such an arrangement would do much to prevent the enormous waste of experience which always ensues when a number of men are investigating a subject unaware of each other's work. Many of us have not the leisure to conduct experiments, and hesitate to adopt a new treatment or invest in expensive apparatus before knowing something of the chances of success.

We are soon to move to new premises, and I believe that the idea of the establishment of a laboratory for the purpose of research has already received the attention of our committee. Such a laboratory would, I think, be of the greatest benefit to the profession. There must be among us many young and capable men whose time is not all filled up by the exigencies of private practice, and who would be only too glad to be able to pursue research work if they had the use of a well equipped laboratory. And there are, I am sure, many, too, among us who would gladly welcome the opportunity of mounting an occasional specimen or making an experiment for which we have not the convenience at home.

These are only suggestions, possibly unpractical ones, and I throw them out for what they may be worth with all humility. My paper is a record of failure, and if it should serve as a warning to others it will have justified its existence.

I have to acknowledge my great indebtedness to Mr. Goadby for the valuable experimental work that he has done in connection with this paper, and I am the more grateful to him because I know that his private engagements and

research work in other directions left him but scant leisure for the task. I cannot but feel that he has added much to the exact knowledge of the subject.

My best thanks are also due to Mr. Humby for the loan of his specimens and the gift of material, and to Mr. Rogers and Mr. Boyd Wallis for their kind replies to my inquiries.

I have now only to thank you for your kind attention and to ask you to lighten my darkness with your experience.

AMALGAM AND ALUMINIUM.

By A. ROSE, L.D.S., Peterborough, Ont.

Having been requested by a lady patient to do something to save the root of a lower right second bicuspid from the necessity of extraction, and as quickly and cheaply as possible, I thought of making a crown of a piece of aluminium tubing about the diameter of the root, trimmed and fitted to it and filled, and cusps built on with amalgam. This I did in a short time, and sent the patient away much pleased with my efforts to replace her lost grinder. You may imagine my surprise when the lady returned next morning with a few scraps of something that looked like acid-eaten iron, about the shape of the piece of tubing used to form the crown, but ready to crumble to pieces in her hand. She said a few minutes after she left the office she felt it getting hot and a boiling sensation about the gum, and then the filling seemed to boil and crumble away out of the crown. I concluded that some chemical action took place on the union of amalgam and aluminium in the saliva around them—but do not yet think I clearly understand the reason for the occurrence. I set to work again, and with tubing, hammer and anvil soon fitted another band to the root, and this time filled it with oxy-phosphate, and find it giving good service and no apparent inclination to give way at any point.

Dominion Dental Journal.

British Journal of Dental Science.

LONDON, APRIL 1, 1897.

MISTAKES.

No living person is perfect. We insert the word "living" because we are reminded of the tale of the man who demurred from the above statement, as he said his wife's first husband *must* have been perfect. We all make mistakes, but we do not all recognise them, and it is only the wiser ones among us who learn from them. Looking back over our past life we are all conscious of having made many grievous errors, errors in misusing time and opportunities, in the choice of friends, and in the use of money. Happy are those whose errors can be retrieved, and whose life in the future is safeguarded by the wisdom born of trial and whose disposition is not soured by the price paid for experience.

Most of us can remember our work-room mistakes, and probably all of us can conjure up the feeling of horror we once experienced on becoming aware that we had extracted the wrong tooth, even although we were sublimely unconscious that we had laid ourselves open to an action at law for malpractice. How many mistakes we have made in forming a hasty diagnosis, and by jumping at conclusions, until experience has taught us by a few leading questions, to draw out all the patient has to tell us of importance, and then, by a process of exclusion, to narrow the diagnosis down, or to wait for time to place the matter beyond doubt. We often make mistakes in selecting a filling material. In certain cases, a good oxyphosphate is more conservative than gold or any other filling. We consider it is a mistake to insert large contour gold fillings in molars, when a good amalgam carefully prepared and inserted can be provided with much less wear and tear on the part of both patient and operator.

We consider a profusion of gold in the front of a patient's mouth—especially if a lady—a mistake, when inlays and crowns can be substituted with greater æsthetic effect. We are of opinion that gold is often used as a kind of fetish to command a larger fee, irrespective of the fact that it may not be the best filling under the circumstances. It is a mistake to use the dental engine as much as some operators do ; it is a still greater mistake to do without it altogether, as we believe is the case with some practitioners. It is abhorred by the public, but if used when necessary, and in the proper manner, it need possess no terrors to any but the hypersensitive. It is a mistake to insert a large amalgam filling in a tooth having a live pulp without placing a non-conducting layer between the filling and the dentine. No immediate trouble may ensue, but in many cases intrinsic calcification and death of the pulp may supervene as the result of thermal changes. It is a mistake to think that people are not learning to value their teeth more than they did. The practitioner who saves teeth will gain the advantage over him who resorts to the forceps on the slightest pretext.

It is a mistake to allow our patients to control us in any important matter. Let us have the moral courage to insist upon having our own way, if we are convinced it is the right one. As a rule we shall win the contest and our patient's respect, without forfeiting our own self-respect. There should be a feeling of sympathy and mutual confidence between ourselves and our patients, without which the best results cannot be attained. This state of things very often only results after a moral conflict in which each gauges the character of the other. It is a mistake to put on the rubber dam and talk Home Rule to a Unionist. As a matter of worldly prudence we consider that politics and religion had better be forbidden subjects. Our politics after all may be wrong, and the best place to put our religion is into our every-day work. Do not let us when speaking of our advertising or irregular opponent fly into a passion and pour our tale of wrongs into our patient's ear. A quiet word to explain the ethical position will carry more weight, and it

shows no vindictive spirit. Remember that the man we have called a quack may have said exactly the same thing about us, and may be just as good a dentist. Let us keep abreast of the times, mix with our fellows for the common good, do something for the profession which has provided us at least with our livelihood. Let us have no unreasoning prejudice against modern improvements but try them on their merits. Lastly, let us never make the mistake of becoming careless about our houses, our persons, and our work. Let our rooms and ourselves be bright and cheerful, our instruments scrupulously clean, and our work the best we are capable of doing.

CRIMINALS DETECTED BY DENTISTS.—Some time ago we drew attention to the fact of a criminal using the services of a dentist to foil the police by having artificial teeth inserted and so altering his appearance. But, as in so many other things, an agency for evil may be an agency for good, and many striking cases are recorded in which dentistry has played its part in bringing criminals to justice. A writer in the *Rocket* gives the following instances: "Not very long ago," he says, "poachers were in a Yorkshire Assize Court charged with the murder of a keeper. One of the prisoners had the mark of a bite upon his wrist, and an examination of the jaws of the murdered keeper showed that he had a peculiar conformation of the teeth. Plaster casts, both of the wounded wrist and of the murdered man's jaws, were made, and the two tallying exactly, the man was convicted, but was not hanged. Almost the same thing happened recently in a the case of a widow Cremieux, at Neuilly, in France, a man accused of murder having certain marks of bites on his right hand. The poor woman had one tooth in her upper and two in her lower jaw, and a cast made showed that these fitted exactly, and without the shadow of a doubt, into the wounds in the hand of the accused.

DENTISTRY AND CRIME.—But even more remarkable still was the evidence proved by dentistry at Manchester Assizes not long since. A gentleman, who had a small dog with him, was attacked on a dark night by a ruffian who, after knocking him about, robbed him, and then promptly effected his escape. A tramp was arrested for the crime, but the prosecutor could not swear to him as the culprit, the night having been so dark, but the injured man pointed out that he had bitten his assailant on the hand, and that his little dog had also assisted with his teeth. The man arrested had marks on his hand, and he also bore the marks of a dog-bite on his legs. He accounted for the latter by saying that a farmer's big dog had worried him. A dentist was, however, called in, and he showed the court and jury conclusively that the prosecutor's little dog must have produced the leg wounds.

DEATH OF MR SIBLEY W. READ, L.D.S. — It is with much regret we have to record the death of Mr. Sibley Read under most painful circumstances. Mr. Read who was thirty-four years of age, lived at Sunbury, and came into town every day. On the morning of the 17th inst., he was in a hurry to catch the early train, as it was his morning on duty at the National Dental Hospital. Instead of crossing the line by the bridge, he jumped down and was running across the metals, when he was struck by a light engine and instantly killed. Mr. Read, who comes of a family of dentists, was Dental Surgeon to the Metropolitan Hospital and Assistant Dental Surgeon to the National Dental Hospital, in which Institution he took great interest, and did his work with energy. The funeral took place on the 23rd, on which sad occasion his colleagues at the National Dental Hospital testified their regard by the presence of some their number and by sending a handsome wreath. We are sure all our readers will join with us in feelings of sympathy for Mr. Read's father and brothers, and in deep sorrow for the loss of a professional brother suddenly cut off in the prime of life.

THE WISDOM TOOTH AND CRIME.—Darwin has told us that the absence of the wisdom tooth is a sign of civilization, but according to the *Dental Practitioner*, Doctor Mario Carrara, of Turin, assistant to Prof. Lombroso, has studied the development of the third molar tooth in the criminal, and, in the report made to the Royal Academy of Turin, comes to the conclusion that the absence of the wisdom tooth is also a characteristic of the criminal. According to Carrara, in the normal man the third molar is found oftener than in the criminal. He also reports the result of his studies made on 67 craniums of criminals which belong to the Lombroso collection, and he says that 31.3 per cent. of them have no third molars. If we thought that wrong-doing would prevent our wisdom teeth from erupting, we think it would be an incentive to crime among some of us.

EDUCATING OUR PATIENTS UP TO GOLD OR CONTINUOUS GUM DENTURES.—We have heard of the lady who was trying to live up to her blue china, but a writer in the *Dental Review* says, "It is the duty of the dentist to see that his patient is educated to think they must have gold or continuous gum where they can afford the higher price. No one who has worn a clean nice gold or continuous gum denture would ever be satisfied with vulcanite again." We venture to differ from the writer. Apart from the question of fee, we should educate our patients to feel that we are providing them with an apparatus best suited to their needs. That vulcanite, especially in edentulous cases, is by far the most comfortable basis for dentures is a truism, though it does not suit all palates. The person who is cleanly, will keep his plate "nice and clean" no matter if it is made of vulcanite, gold or porcelain.

PULP MUMMIFYING.—A writer in the *Cosmos* says he has experimented for years and has succeeded in a great many cases with a preparation of arsenic, menthol, thymol and

glycerol. He thinks that the day is not far distant when it will be an accepted fact that the successful treatment of devitalized teeth does not depend on the complete removal of the pulp, and filling of roots to the apex, although it is advisable to remove as much of the pulp as can easily be reached, though not necessarily all, mummifying the remainder. He says in conclusion: "Fruit is successfully canned and sealed, wine bottled and sealed—the older it gets the better—bodies are preserved for centuries; why can we not seal up a small part of the pulp so as to cause no future trouble?" For the simple reason that we can get at and handle the above mentioned articles, but how anyone is going to seal the apical foramen without extracting the pulp or the tooth, passes our comprehension.

THE EDINBURGH DENTAL STUDENTS' THIRTEENTH ANNUAL DINNER.—What has come over the humour of the Edinburgh Dental Students? Hitherto at the period of their annual feast we have been accustomed to receive an amusing and artistic menu card as a souvenir of the occasion. This year the committee appear to have changed all this, and started a new arrangement with the ordinary commonplace bill of fare to be found on the tables of a restaurant. Is Scotch "wut" played out in Edinburgh, or is it only taking a well earned rest?

You ask: "Can it be that in England the dentist is held more strictly to account for improper service?" As an Englishman I say it can be, and is so. I studied here, and went to England somewhat inclined to scoff, but changed my mind. In England they are very stringent, and do not turn out men by any but authorized colleges, and require a first-class education. There they hold a higher professional standard among themselves, and it is nothing rare for a dentist to institute proceedings against unprofessional and non-qualified men.

J. Austin Bucknall.

Abstracts of British & Foreign Journals.

CONCERNING VULCANITE.

By Dr. C. A. ALLEN, Buffalo, N.Y.

The physical changes which vulcanite undergoes during the process of its becoming a solid body, I think, are little understood. At any rate, the remedy for many of the evils of unscientific treatment is too rarely employed.

To begin with, let us briefly consider the elementary character of this body. The gum, as it comes to the manufacturer, is purely a vegetable compound—a hydrocarbon—made up of $H_{16}C_7$ (however, upon these proportions authorities differ, but not to the injury of our argument.)

Sulphide of mercury, which renders the body of use in our art, is now added in the proportions of one to two of rubber. This preparation possesses no toxic or even disturbing physiological effects whatever, and may be brought into mucous contact with impunity.

Experimentation by thorough processes, aided by the most delicate instruments, has demonstrated that the quantity of mercury which it is possible to evaporate from a vulcanite plate, before actually destroying the body itself, is only infinitesimally small. It should be remembered that in order to have even this slight manifestation of the “enemy’s” presence a high degree of heat must be attained, a condition which could not be sanely looked for in the human mouth.

In the process of vulcanization it is readily conceded that we first have fusion of the component parts of the body under treatment, which occurs at certain definite temperatures.

What are these points of fusion?

Any work on chemistry will place you right on the melting point of the sulphur in the mercury compound,—and that will be $237^{\circ}+F$. As to the melting point of hydrocarbon compound (rubber), elaborate experiments by Dr. A. P. Southwick prove, beyond the possibility of controversy, that this will be at $248^{\circ} F$.

Now, with the component parts of our body all fused, we may naturally expect the commencement of that remarkable and little understood physical change in the compound which we term vulcanization. That this change does not begin at

once upon the fusion of the compound's ingredients, and that vulcanization, as we understand it, may be fully completed without the addition of a single increment of heat, is easily demonstrated. All that possibly could be required in addition to the present conditions would be a continuation of the 248° to 250° F. over a longer period of time. If doubt exists in the mind of any one as to the truth of this statement, let me suggest to him that he can easily obtain a "lazy man's proof" of it by asking any manufacturer of rubber garments how he treats the articles as to temperature, time, etc.

Continuing in my quotations of the authority mentioned, I fearlessly make the statement that the actual destruction of vulcanite begins at 300° F. and continues in proportion as the temperature is raised to 600° F., where rubber will be entirely dissipated, the sulphur being affected in the same manner at 824° F.

Now, a word in regard to vulcanizers and their use. It should always be borne in mind that the degree of heat indicated by the mercury bath thermometer *never* registers the degree of heat corresponding to that of the inside of the vulcanizing pot, where the case is being treated. The figures for this statement are as follows: If the stratum of atmosphere inclosed in the pot above the water line (when the cap is adjusted) is not expelled upon a degree of heat sufficient to generate steam being reached, we can always confidently rely upon our thermometer registering from 15° to 18° F., according to the amount of water, below that actually existing within the chamber. Not only this, but we must always be prepared to take into account a considerable loss of registering power of the thermometer through the radiation of heat, the convection of air currents, temperature of room, etc. To these influences you can always safely charge a loss of registering power of the thermometer of at least 15° F. and usually more, often 20° F. If these figures can stand verification, and I declare that they can, what will be the result? Simply this: The man who does not expel the atmosphere from the pot really subjects his case to at least 30° F. of temperature more than that indicated by the thermometer. If it does expel the atmosphere he still has 15° F. more than that registered. From this point our deductions are easy. We have declared that the destruction of vulcanite begins at 300° F. actual. As an illustration of this point, let us imagine a case being treated at the old-fashioned 320° F. without regarding these two influences. The result is easy. Instead of 320° F. we

have at least 350° F. If the stratum of atmosphere is *expelled* we still have 335° F. to which our case is being subjected. If these figures and those preceding them are correct, we find ourselves treating vulcanite anywhere from 50° F. down to 35° F. above where the destruction of the compound actually begins. We are now asked what will be the manifestations of this unscientific treatment of the most abused and least understood body in the dental world. Every child in the land associates with rubber the property of elasticity, and that to the degree of exceeding in this respect any other body known to him. Do the high-temperature plates retain this characteristic? By no means, and, on the contrary, they have entirely lost it. Why? Because the extreme temperature to which they have been subjected has destroyed this natural inherent characteristic.

The pioneers in vulcanite were instructed to vulcanize at a low temperature, about 280° F. The next manifest injury to the base for our purposes will be in its extreme contraction. It should be borne in mind that vulcanite is affected by thermal changes more than any other solid body. Its rate of expansion in ordinary temperatures is somewhat over six times that of iron, about five times that of brass, and nearly four times that of zinc. This extraordinary expansion upon the application of heat will conversely manifest itself by contraction when the opposite thermal condition is applied.

Another result of excessive temperature in vulcanization, and the inevitable contraction in the molecular rearrangement which will follow, may manifest in cracked sections or "chipped" joints.

Still another condition may present the case with one or more "spongy" points, usually to be expected at the thickest part of the body. The writer's deductions from the foregoing are that all bodies of vulcanite treated at a temperature above 300° F. (actual) will show—

1. Destruction, increasing proportionately with temperature elevation, and loss of elasticity.
2. Extreme contraction, resulting in the plate having no membranous contact across the posterior part.
3. Broken or cracked sections, or "slivered" at joints.
4. Sponginess of vulcanite at thickest portions, which may be manifest over a considerable surface, or may appear only at certain points in size and shape quite like a split pea.

Remedy.—Any or all of the foregoing results may be obviated by maintaining a temperature within the vulcanizing pot throughout the entire period which shall not exceed 300° F.

Dental Cosmos.

THE EXAMINERS WRONG.

It is not an uncommon thing in examinations for men who have been ploughed to think they should have passed. Not everyone however, has the courage of his convictions like a candidate at a Law Agents' examination at Edinburgh the other week. Being informed that he had failed, this young gentleman insisted that some mistake must have been made, prevailed upon an official to show him his papers, and then triumphantly proved that his marks had been wrongly added up, and that he had really passed. Passed he accordingly was. The mistake was serious and inexcusable, and whoever made it deserves a severe wiggling. At the same time I hope that the incident will not cause rejected candidates generally to jump to the conclusion that they are the victims of similar errors, or examiners will have an unhappy time of it.

Truth.

ON TEMPORARY STOPPINGS.

By GARRETT NEWKIRK, M.D. Chicago.

If these are to remain for some time they should be of the red gutta-percha rather than the white, because they will wear out more slowly.

I am fully convinced that the average dentist does not use temporary fillings nearly as often as he should—that far too many cavities are opened up, prepared and filled at once.

First of all, a gutta-percha stopping made be made to perform the office of a wedge, surely and easily for the patient. It may be so applied as to crowd the gum away from cervical margins, allowing an application of the dam, and vision of the edge not possible at the first sitting.

In cases of near exposure of the pulp where there has been some degree of pain experienced either before or during the excavation of the tooth, and where an overlay of cement has been made at the deeper part, the gutta-percha stopping also gives time for the cement to harden without disturbance, time for testing the condition of the pulp, time for the allayment of previous irritation, time for soothing medication, time for the accomplishment of disinfection in the dentinal wall. It is not an unusual practice with me to prepare beforehand and so treat and fill temporarily from two to six cavities, without attempting one final operation. I believe the habit to be a good one. A consideration worth remembering also with reference to gutta-percha temporary stoppings as contrasted with cotton and varnish is this, that they are good for an indefinite period of time. If anything should prevent the return of the patient at the time appointed, and this will happen now and then, unavoidably, the tooth is safe—it is protected from infection, is kept comfortable, and not only this, but the filling of the interproximal space bridges over the gum preserves that from the pressure of food or any foreign substances. The gutta-percha should in all cases be trimmed down so as not to be disturbed by the occlusion of the teeth.—*Dental Review*.

CHLORATE OF POTASH AS AN ANTISEPTIC AND GERMICIDE FOR THE MOUTH.

By Dr. UNNA.

During the past eight years in which I have employed chlorate of potash in this modified form I never had occasion to look for a better cleansing agent for the mouth, tonsils and teeth. Naturally, I fully agree with Miller that the efficacy of this remedy does not solely depend upon its antiseptic value.

It is my opinion that it possesses marked tonic properties acting favourably on mercurialized gums and imparting increased circulation. In many other affections of the mouth and tonsils the property of chlorate of potash of favouring secretions is particularly commendable.

To obtain this result, the pure chlorate of potash must be used; a small quantity is spread on the tooth brush, applied to the teeth and gums and rubbed to a paste. After rinsing

the mouth with clear water, a somewhat salty but refreshing taste remains.

I know of no other preparation that will remove so quickly and effectually the foetor oris, which is most apparent after meals and upon wakening in the morning. A number of cases in which this foetor proved sufficiently objectionable to enlist medical aid were promptly cured by the application of chlorate of potash after the patients had been treated for internal ailments.

Chlorate of potash, being a neutral salt, has absolutely no detrimental effect on the teeth; if used in the concentrated 50 per cent. form, it will promptly check the growth of the fungi for a long time, and in many instance destroy them entirely.

Chlorate of potash having been declared a poisonous chemical, it is safer to employ it in the form of tooth-paste; thus the possibility of an accident is excluded.

It has been demonstrated that the daily use of potash tooth-paste is the very best prophylactic against caries of the teeth and affections of the tonsils, including diphtheria.

Notes and Remedies.

EUCAINE.

The action of eucaine in producing a temporary local congestion militates greatly against the use of the drug in active inflammatory conditions, but may possibly be obviated by using equal parts of the eucaine and cocaine, as recommended by Berger. Eucaine is a poison similar to cocaine, but has the great advantage of being decidedly less harmful to the organism when used in the same doses. Another advantage which the drug possesses over cocaiae is that it may be kept for an indefinite time in solution with sterilized water, 1 part to 10. The solution may be repeatedly sterilised by boiling, without impairing its anæsthetic properties.—Pouchet, at a meeting of the Société de Thérapeutique (*Sem. Med.*, Feb. 3rd), said that he had investigated the physiological action of eucaine, and had found that the toxic equivalent of that drug was almost equal to that of cocaine. Moreover, eucaine may produce toxic effects which may even prove fatal without any prodromic stage. It acts on the heart with an intensity equal,

if not superior to, that of cocaine. In a frog in which 2 mg. of eucaine were injected there was observed a considerable slowing of the heart's beat with arrhythmia, whereas equal doses of cocaine produced no effect. Eucaine must therefore be looked upon as rather a dangerous anæsthetic. Reclus, who has studied the effects of eucaine from the clinical point of view, has satisfied himself that in equal doses its anæsthetic power is less than that of cocaine, and he thinks therefore that it should not be used in serious operations.—J. S. Gibb, (Philadelphia *Polyclinic*, Jan. 23rd) has used eucaine in diseases of the throat and nose, and sums up the results of his experience as follows: (1) Eucaine is equally efficient with cocaine as an anæsthetic in ordinary examinations. (2) Eucaine possesses equal anæsthetic power with cocaine, and hence is as useful in operations in the nose, pharynx, or larynx. (3) Eucaine is nearly, if not quite, as effective as cocaine in reducing engorged turbinates. (4) Eucaine is superior to cocaine in that it is less likely to produce toxic symptoms. (5) Eucaine is superior to cocaine in that it produces far less unpleasant subjective symptoms; especially is this true as regards the pharynx.

British Medical Journal.

CARBOLIC ACID TEMPERS STEEL TOOLS

according to the *Engineer*, which quotes from a French source. M. Levat, who recommends its use for this purpose, tempered one cold chisel in water, and another in a solution of carbolic acid, after both had been heated to a cherry red. The chisels were then set to work on extra hard wrought iron, and it was found that the one tempered in water became notched after a short time, whilst the one tempered in carbolic acid remained perfectly intact. A second test was made with two puddled steel bars, which were heated to white heat and tempered in water and carbolic acid respectively. The bar tempered in carbolic acid showed a much finer fracture, which reflected like a mirror when filed, and its carbon contents were not increased, but in the bending test it showed more elasticity and pliability than the other, while its hardness made it more suitable for tools.

FLEXIBLE-EDGED RUBBER PLATES.

Dr. W. V. B. Ames, of Chicago, exhibited at the Interstate meeting, some flexible-edge rubber plates, with which atmospheric retention is obtained, in lower cases, by extending the flexible edge entirely around, and in upper cases, across the posterior margin, which can be so formed as to leave the major portion of the hard palate uncovered. To construct the flexible edge plate, the model is grooved to the extent that is judged necessary for the pressure of the flexible edge; and in packing, the flask is filled with ordinary rubber, using draftsman's table cloth between the halves of the flask to facilitate separation for examination. When the mould is nicely filled with ordinary rubber, as much of this is trimmed away with scissors as is desired of the flexible rubber. The flexible palate-rubber is then packed into the space thus made, and the flasks are brought together again and vulcanized at 300 degrees for three hours; the ordinary rubber coming out hard and the palate rubber soft and flexible. In waxing, especial care should be exercised in building the wax just as the finished edge is desired to be, since the flexible rubber will admit of little or no trimming.

Western Journal.

PREPARING THE GUM FOR A CROWN.

By RAYMOND J. WENKER, D.D.S.

To obtain the best results the gingiva should be temporarily dilated and receded before preparing the tooth to receive a band, and before setting a crown. This can be readily accomplished by twisting absorbent cotton on a waxed ligature, and tying it around the tooth against the gingiva the day before operating. The gingival border of the band should not only be in the proper relation to the line of attachment to the membrane, but it should also be dressed to a thin edge, and fit snugly to the tooth on all sides. When the surface of the tooth to receive a band cannot be made convex in a line parallel to the border of the gingiva, the band should be burnished to fit this concavity. But if the concavity is in the form of a deep fissure, it should be filled with gold or amalgam.

Dental Review.

Dental News.

CONVERSAZIONE AND DISTRIBUTION OF PRIZES AT THE NATIONAL DENTAL HOSPITAL.

This beautiful building was *en fete* on the 11th inst., on the occasion of the Prize Distribution. The weather was merciless, but in spite of this a large number of friends of the Institution assembled, and a most enjoyable evening was spent.

After the reception by the Staff, Mr. Spokes, the Dean of the College spoke in a very few words of the flourishing condition of the Institution, and then requested Mrs. Mummery—half hidden by a beautiful bouquet presented by the Staff—to distribute the prizes and certificates to the students.

PRIZE LIST.

Dental Anatomy—Medal, Mr. L. H. Canton ; Certificate, Mr. J. C. Wing, and Mr. G. W. Storey.

Dental Surgery—Medal, Mr. J. C. Wing ; Certificate, Mr. A. B. Poundall, Miss Halliday, and Mr. H. H. Gudgeon.

Dental Mechanics—Medal, Mr. A. E. Relph ; Certificate, Mr. E. Tilley and Mr. A. Poundall.

Practical Dental Mechanics—Certificate, Mr. F. H. Pearse.

Metallurgy—Medal, Mr. C. Browne Thomas ; Certificate, Mr. A. E. Relph and Mr. A. B. Poundall.

Materia Medica—Medal, Mr. J. C. Wing ; Certificate, Miss Halliday and Mr. L. H. Canton.

Operative Dental Surgery—Medal, Mr. C. Browne Thomas ; Certificate, Mr. A. B. Poundall and Mr. J. C. Wing.

Histology—Certificate, Mr. J. C. Wing.

Ash Prize—Mr. J. C. Wing.

Rymer Medal—Mr. C. Browne Thomas.

Students' Society—Mr. H. W. Moore.

Mr. Alderman Rymer, J. P., then proposed a hearty vote of thanks to Mrs. Mummery for her kindness in coming there that evening, and said that the value of the prizes and certificates would be enhanced by the gracious manner in which

they had been presented by the wife of one who had added further brilliance to a name honoured in Dental Surgery.

Mr. Mummery in responding, made a most interesting speech, which we publish in full on another page.

The remainder of the evening was devoted to amusement, of which there was no lack.

Mr. E. A. Johnson's band discoursed most excellent music in the Lecture Room, when that room was not plunged in darkness for the Animated Photographs shown by Mr. Dale, late of the Alhambra Theatre. The Demonstration Room was utilised by Mr. H. C. Carter—an old student of the College—and his wife, and gave a most mystifying and amazing "second-sight Seance." In the Committee Room, Mr. William Webster, F.C.S., gave a demonstration on the Röntgen Rays with the fluorescent screen, the visitors being able to observe each other's spinal columns, ribs, frontal and maxillary sinuses, to say nothing of livers and hearts. The Museum was under the charge of Mr. W. H. Must, who had arranged an excellent show of microscopic slides, while the Mechanical Laboratory was glorified beyond recognition, having been converted into the Refreshment Room. Last, but not least, an excellent Concert, under the direction of Mr. Glassington and Mr. Beverley, took place in the Stopping Room, where, in addition to professional talent, Messrs. Alfred Smith, Rushton and Wheatley rendered good service. We understand that Mr. Johnson's Band were induced to prolong their stay, and that an impromptu dance brought a most enjoyable evening to a close.

DENTAL HOSPITAL OF LONDON.

The thirty-ninth meeting of this charity was held at the Hospital in Leicester Square.

Lord Kinnaird was in the chair, and the Committee of Management, in presenting their report, which was unanimously adopted, congratulated the governors on the continued and increasing usefulness of the institution. Special attention was drawn to the medical school in connection with the hospital, from which year by year large numbers of highly qualified dental surgeons proceed to all parts of the world to offer their services in alleviating the pain and suffering arising

ing from ailments due more or less to defective teeth, and it was pointed out that the work of both the hospital and school was hampered, owing to the utter unsuitability of the present premises, in area as well as arrangement, and with a view to improvement in this respect the committee have purchased, as opportunity offered, the buildings contiguous to their property. The whole of such a site as is deemed suitable, containing an area of about 8,000 square feet, has now been secured, and the buildings thereon having been condemned by the County Council, are now cleared off, and the committee, seeing the urgent need of the hospital for improved premises, have decided, rather than let the land lie vacant, to raise by loan the money necessary to start building. The designs for the new hospital have been prepared by Messrs. Young and Hall, and the committee hope that during the current year the building will be erected. During the year 1896, 57,654 cases have been attended to at the hospital, many of them being treated for preservation rather than extraction. An earnest appeal was made by the committee for increased assistance to enable them to carry on the work, and also to furnish them with means for proceeding with the erection of the new hospital so much needed, and they venture to hope that as the Queen's Diamond Jubilee will be celebrated during the current year, the generous public will more liberally subscribe toward this deserving charity, as without funds the most perfect organisation must languish and fail in its best efforts.

Donations or subscriptions will be gladly received by the bankers, Messrs. Barclay and Co., (Limited), 1, Pall-mall East, S.W.; the treasurer, Joseph Walker, Esq., M.D., or the secretary, Mr. J. F. Pink, at the hospital, Leicester-square, W.C., from the latter of whom all information concerning the institution may be obtained.

THE NEW DENTAL HOSPITAL.

The demolitions for the new Dental Hospital in Leicester Square have revealed, for the first time for quite two centuries, the full side view of Sir Isaac Newton's house in St. Martin's Street, to which he moved in 1710 from Jermyn Street. It was originally a red brick house, but was stuccoed

in 1849, and stands next door to the old Huguenot Chapel, which was afterwards occupied by Toplady, the celebrated dissenting minister. The house has seen many changes. In 1815 it was a common restaurant, kept by Pagliano, who was running a superior restaurant at the same time in Hogarth's house in Leicester Square, which he named after the famous old-time Paris cook, Sabloniere. Newton's house is now a mission hall, devoted to mother's meetings and similar gatherings. It is in a rather shabby, if not dilapidated, condition, and will disappear, no doubt, before long, as Hogarth's and Hunter's houses have disappeared before it.

THE DENTISTRY PROSECUTION IN EDINBURGH.

In the Edinburgh Sheriff Court, Sheriff Orphoot had before him the complaint at the instance of William Bromfield Paterson, F.R.C.S.E., secretary of the British Dental Association, London, against T. Tennant Black, 11 Marchmont Road, Edinburgh. It was alleged that the respondent, not being a person registered under the Dentist Act, 1878, and not being a legally qualified medical practitioner, had taken or used a name, title, addition, or description implying that he was a person specially qualified to practise dentistry, by (1) having his name, place of business, and scale of charges printed on cards, one of which he handed to James Crawford, 3 Crichton Place, Edinburgh, on or about 15th February, 1897; and (2) having, between 12th and 15th February, 1897, above the door of his premises a glass globe with the words "Dental Office" thereon. When the case came up a week ago the respondent pleaded not guilty; but Mr. Peter Douglas, S.S.C., stated to his Lordship that he had advised his client to withdraw the plea of not guilty, and to plead guilty. The case against Emslie, which his Lordship had decided, was to be appealed to a higher Court, and it had been arranged with the Procurator-Fiscal that in the event of Mr. Emslie being successful in his appeal, any fine which the Sheriff might impose in the present case would be refunded. He might mention that the respondent had ceased to use the cards in question, and had removed the glass globe. The Sheriff imposed a similar penalty to that, in the last case, viz., £3 3s., with £2 2s. of expenses.

BRIGHTON BOROUGH BENCH.

"Moss Harris," Western Road, was summoned for unlawfully, wilfully, and falsely using the name or title of dentist, not being registered under the provisions of the Dentist Act, 1878. The case was adjourned on January 18th, and Mr. Prince, who now represented the defendant, asked for a further adjournment as the action mentioned at the last hearing was still pending. There being no objection on the part of the prosecution the case was adjourned until April 6th.

THE EXETER ANCIENT LIGHTS APPEAL.

The hearing of the case Mary Amelia Frost Chastey and Ellen Martha Chastey v. John Mackno Ackland was resumed at the House of Lords. It was an appeal against a judgment of the Court of Appeal, which set aside an order of Mr. Justice Cave made at the Exeter Winter Assizes in 1895, with respect to the obstruction of air and light to the appellant's house by a building erected by the respondent.

Mr. J. Alderson Foote followed Mr. Cozens-Hardy on behalf of the respondent, and contended that the Prescription Act did not apply to a claim to the air passing over the land of an adjoining owner. He also maintained that no immemorial user was or could be alleged in the present case. The respondent, he said, was not alleged to have polluted the air which came to the appellant's yard, but only by his buildings that have rendered slower the disposal of emanations and impurities arising either on the appellant's own premises or elsewhere on the premises of the respondent.

The learned counsel apologised for the length of time the case had occupied.

Lord Herschell remarked that it had not occupied a moment too long, as it raised a most important question.

At the conclusion of Mr. Foote's argument Mr. Duke replied on the whole case.

In reply to the Lord Chancellor, he said the parties had not approached each other to ascertain whether the matter could not be settled by the payment of damages. It would, he said, be a difficult matter to ascertain the amount of the damage. The appellants had established a lodging-house,

which had become well-known, and was of a high-class, and what they said was, "We are here, and want to continue here; we do not want to be turned away and stand our chance of being able to establish a business elsewhere."

Lord MacNaghton asked whether he argued that the Court must grant an injunction and had no power to give damages instead.

Mr. Duke said that was his contention.

After the adjournment for lunch the Lord Chancellor remarked that the parties seemed now to be within reasonable distance of each other, and Lord Herschell would be very happy to assist them.

Mr. Cozens - Hardy said the respondent would pay the appellants £300.

Mr. Duke: I understand we are not to proceed with the case for an injunction in consideration of that sum and costs.

The Lord Chancellor said the suggestion meant that the order of the Court of Appeal would be reversed so far as to make the sum for damages £300 instead of £10, and that the respondent pay the costs of the trial at the Court of Appeal and in that House.

The Lord Chancellor said the worst of it was that all the questions of the law were still open. (Laughter.)

Lord Herschell thought, considering all things, the parties had done the best they could.

DENTAL STUDENTS' DINNER.

The annual dinner of the Students of the Liverpool Dental Hospital and their friends took place at the Adelphi Hotel, under the presidency of Sir James Poole, chairman of the committee.

During the day the Midland Branch of the British Dental Association held its quarterly meeting in this city. The meeting proved to be one of the most successful gatherings of its kind on record. The operations of the branch cover a wide area, and delegates were present from Darlington, Hull, York, Sheffield, etc.

The occasion was, therefore, regarded as an auspicious one, as the dinner committee had secured the presence of a large number of the members of the branch at their *reunion*.

Amongst those present were Messrs. George G. Campion (dean of the Manchester Dental School), J. R. R. Scott (hon. treasurer), W. L. Jackson (hon. secretary), George Wynne, Dr. Gemmell, Dr. Waite, Messrs. J. Wood, E. J. Phillips, R. M. Capon, F. Rose, Reginald H. Bates, J. P. Roberts, and W. H. Gilmour.

After the loyal toast, proposed from the chair, had been duly honoured, Mr. Nixon, in an admirable speech, proposed "The Hospital Committee and Staff." Mr. George Wynne responded on behalf of the committee, and Dr. Waite on behalf of the Staff.

The toast of "The Midland Branch of the British Dental Association" was proposed by Dr. Gemmell and responded to by Dr. Gaddes, of Harrogate.

The other toasts were "The Guests" proposed by Mr. Capon, and responded to by Mr. Campion, representing the Manchester school.

The students had provided an exceedingly interesting musical programme, the accompanist, Dr. Livesey, contributing materially to the success of the entertainment.

The chairman's health, proposed by Mr. R. Edwards, was received with the greatest cordiality, and the reply of Sir James Poole was exceedingly happy. Altogether a most enjoyable evening was spent.

A MEDICAL NUN.

Many religious orders devote themselves almost entirely to the care of the sick, and nuns in various parts of the world manufacture and administer remedies by no means solely of a spiritual kind. There is, however, at least one regularly qualified female member of the medical profession who is also a member of a religious community. This is Sister Raphael, M.D., of the Order of the Sisters of St. Joseph, in Kalamazoo, Michigan. Sister Raphael took her doctor's degree before she took the veil. She has a regular "office" in the convent, and is held in high esteem by the profession of Kalamazoo. One of the inmates of the Grey Nuns' Convent in Montreal is a qualified dentist.

British Medical Journal.

SHOCKING ACCIDENT TO A DENTIST.

A fatal accident occurred at Sunbury Railway Station, the victim being Mr. Sibley Read, of Fir Cottage, Staines-road, Sunbury, where he had resided for about a year. The deceased gentleman was by profession a dental surgeon, and is said to have been officially connected with a London hospital. He was a first-class season ticket holder on the line, and was in the habit of travelling to and from Town daily. His usual time for leaving Sunbury was between eight and nine in the morning, but on this occasion he wished to catch the first train, which starts at 7.40. He hurried from his residence to the station, and, to save time, ran through the goods yard to the down platform. As his train was about to start, he jumped on to the line with the evident intention of entering a carriage on the off side, but at the same instant he was caught by a light engine running through to Shepparton and literally cut to pieces. The deceased gentleman's remains were placed on a truck by permanent way men and removed to the mortuary, but, with the sanction of the coroner, Dr. Gordon Hogg, they were subsequently taken to Fir Cottage to await an inquest. The deceased was a bachelor, thirty-four years of age. During his brief residence at Sunbury he had earned general esteem, and his terrible end has caused a profound sensation in the neighbourhood.

BURSTING OF A VULCANISER.

An accident, which might easily have been followed by more serious consequences, took place in the workshop adjoining the premises of Mr. Arthur J. Gray, dental surgeon, Victoria House, Victoria Street, Sheffield. This was the sudden bursting of a vulcaniser, in which two sets of teeth were in process of being vulcanised. The apparatus is heated by means of a continuous supply of gas, and is sealed, when in use, by means of a circular iron lid, which is screwed down with nuts. It was this lid which, owing either to weak nuts or to extraordinary pressure, gave way, and flew with great force to the roof, doing considerable damage. Both Mr. Gray and his assistant were in the workshop at the time, but neither was seriously injured. Damage was done to apparatus, furniture, &c., to the extent of about £30.

COMMENTS ON A RECENT CASE.

The case of the West End dentist, Morgan, against whom damages were claimed for the alleged seduction of a young lady client, ended yesterday in a verdict for the plaintiff, that is the victim's mother, for forty shillings. It is not in cases of this kind that the wisdom of a British jury shines. Either there was ground for heavy damages, or there was no ground for damages at all. To the latter view Mr. Justice Hawkins evidently inclined, but while estimating the young lady's virtue, or properly speaking, perhaps, her "services" to her mother, at an extremely light figure, the jury appear to have thought it well to punish the defendant for his abuse of his position, which a hostile verdict naturally does, whatever the amount of damages awarded. Punishment of the defendant is not the object of the statute, but the jury appear to have been desirous of accomplishing that end. On no other hypothesis is their verdict intelligible; for, in awarding merely nominal damages, they can hardly have placed implicit belief in the victim's story. At the same time one need not regret that the law has been strained a point or two in order to reach the defendant Morgan. Dentists, doctors, and other professional men stand in relations of peculiar delicacy to their lady clients, and it is well they should be reminded of the responsibilities of their position.—*The Morning.*

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

To the Editor of the "British Journal of Dental Science."

Dear Sir,—A better experiment than the formation of a Dental Club would be that of an Association for the sole purpose of enforcing the *Dentist's Act*.

Separate Associations for each county would be advisable, because the Council would have a smaller district to purge; each large town could be represented on the Council, and people naturally like to manage their own affairs.

Undoubtedly these small Associations would attract the newly-qualified men as members, for they would prefer one that looked after their interests to one that says it will, but inaugurates picnics and such-like instead. A club would swallow up all the income, and leave none for political work, whereas, in the working of an Association, as suggested above, there would be no other expenses than solicitors' account, note paper and postage stamps, for the officers would all be honorary and there would be no rent.

I remain, yours truly,

Brighton, March 1, 1897.

ASSOCIATION.

APPOINTMENTS.

Mr. Wm. J. Royal, L.D.S.Glas., has been elected Assistant Dental Surgeon to the Royal United Hospital, Bath.

Mr. Harold J. Pickering, L.D.S., R.D.S.Eng., has been appointed Dental Surgeon to Velstead School, Essex.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester during the month of FEBRUARY, 1897.

Number of Patients attended	940
Number of Extractions	551
Number of Extractions under Anæsthetics	175
Gold Stoppings	125
Other Stoppings	214
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	280
Gold and Porcelain Crowns	26
Inlays	1
Total	2312

J. STEPHENSON, *House Dental Surgeon.*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
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THE DISCOLOURATION OF COPPER AMALGAM.*

By KENNETH W. GOADBY.

Some time since, in anticipation of the paper just read, Mr. Badcock enlisted my help to determine if possible, something definite as regards the discolouration copper amalgam undergoes in the mouth. Unfortunately the time at my disposal has been limited, so that the following results are rather fragmentary and incomplete. The points I have endeavoured to solve are the chemical nature of the black and green discolouration, with the effect the latter conditions may have upon micro-organisms.

The literature of copper amalgam is most extensive and not a little contradictory, whilst no direct experiments seem to have been made with the well-known green-staining, although several observers have hazarded a guess. Other observers have made experiments as to its antiseptic properties, notably Miller, who placed pellets of copper amalgam upon plate-cultures, and found that the growth of colonies in their vicinity was inhibited, but at the same time unannealed soft gold had a similar effect. Now even if we allow that the copper does produce an antiseptic effect, it must be by the change of the metallic copper to some copper salt, but we cannot ascribe a like process to the gold cylinders. Under these circumstances it was thought desirable to confirm

* Read before the Odontological Society of Great Britain.

Miller's results. Plates of agar and gelatin were poured and small pellets of amalgam dropped on. In all the gelatin plates, five in number, a development of bacteria took place right up to the filling material, which after a few days commenced to turn green. In three gelatin slant tubes a like effect was produced, the amalgam having no antiseptic action whatever. With the agar plates the series of events was even more interesting. Plates prepared in the above way after two or three days showed a distinct growth, the colonies sometimes stretching up to the mass of amalgam, and at other times some little distance away, making a well-marked zone ; so far Miller is right. But the amalgam in all cases turned green and showed a ring of growth in its immediate vicinity: control tubes inoculated from this green zone developed rapidly upon agar, broth or gelatin, whilst on agar and gelatin plates not inoculated with cultivations, no change whatever occurred in the amalgam, so I am able to point to conclusive evidence that the antiseptic effect of copper amalgam is an insignificant quantity. The explanation of the zone formed round the amalgam in which few or no colonies are to be seen is not difficult to explain when we consider the conditions. The medium agar is a damp one, and when a mass of material is placed upon its surface, the force of capillarity comes into play, a meniscus is formed and the bacteria washed into it by the currents set up. Upon gelatin, which is a drier medium, this does not take place. The explanation appears to me to be perfectly in accordance with the facts, especially as colonies do eventually develop in the zone if inoculated when the agar has dried, whilst at times colonies may be seen below the surface also. Clearly, then, we cannot say that the amalgam exercises any antiseptic effect upon plate cultures, but is its action upon fluid media of an antiseptic nature? The following experiments were made to determine this point :—

A series of tubes of broth, saliva and gelatin were inoculated with cultures—(1) from the mouth direct; (2) with streptococci (*brevis*); (3) impure cultures from the mouth. In all cases a development of bacteria took place. Thus one to three pellets per 10 cc. did not prevent the growth in any case, the gelatin tubes developing similarly in the broth and saliva under the same conditions; the controls grew perhaps a little more rapidly, but the difference was so small that we cannot attribute even very slight antiseptic effect to the amalgam under discussion.

Miller's experiments with copper sulphate are conclusive as far as they go, but as will be subsequently seen, experiment renders the presence of a sulphate improbable, consequently the antiseptic reactions of copper sulphate do not form an altogether satisfactory argument in dealing with amalgams containing copper.

The discolouration of Sullivan and allied fillings is too well known to require any explanatory remarks, whilst the division of the colouration into "black" and "green" varieties is a matter of clinical experience which requires no further comment, we may therefore at once discuss the production of the former. Several tubes of saliva were taken and small pellets of amalgam dropped in; a solution of sulphuretted hydrogen was next added, and the tubes placed in a chamber at the body temperature. Within a short space of time the familiar sooty appearance was to be seen, whilst in those tubes in which the solution was weakest a chocolate brown colour occurred exactly resembling a condition often noticed in the mouth. Upon gently rubbing the black deposit a shiny surface was exposed, due no doubt to the mercury set free. On again placing the mass in the solution, the surface became once more coated with the black sooty layer, placing beyond a doubt the question of sulphide. This is of course what was to be expected, the experiments simply giving direct

evidence of a self evident fact. In the control tubes the material remained quite bright, whilst in several cases tubes inoculated with an extremely foetid culture of mouth bacilli the amalgam turned black, the culture having the extremely unpleasant smell of a dirty mouth. In tubes inoculated with pure cultures of the mouth streptococcus, this result was not forthcoming. Decomposition of food is a fruitful source of sulphuretted hydrogen, so that the series of events in the buccal cavity is evident, and although the percentage of sulphuretted hydrogen present at any given time would necessarily be small, the process would not thereby be suspended but only prolonged, the movements of the tongue and the rub of opposing teeth during mastication accelerating the process by exposing fresh surfaces to the denuding action ; in fine, the condition may almost be compared to the gradual wearing away of rocks by the combined action of carboic acid and rain.

I have made careful examination of the sooty deposit obtained in this way, and although copper sulphide is always present no reaction characteristic of mercury was to be obtained ; it is not improbable that the mercury recombines with the more electro-negative metal copper, eventually producing the curious pasty condition sometimes met with. This hypothesis I cannot confirm by experiment, however, as in all cases a shiny condition was the only result. *But* the process just described is not the only method by which an amalgam may be disintegrated, the mouth organisms themselves produce chemical changes in the amalgam by which it is softened, eroded and destroyed. To this we will recur later.

The second species of stain, often quite a dark green, was also investigated. The pigmentation has popularly been ascribed to copper sulphate, why is not quite clear, as many other copper salts are green, and at the same time the origin

of a sulphate is to say the least, obscure. On the other hand more cautious observers have darkly hinted copper salts, thus leaving the field quite open.

Copper carbonate—that salt causing the green colouration of any article exposed for long to the air, would have been a far better theory, and it is most probable that this salt at times does occur, especially as the saliva normally contains 60 cc. of carbonic acid per 100 cc. (Waller). However, I have attempted the determination of this salt by tests carried out in the following way. Teeth showing a well marked condition of green stain were selected, ground up and treated—

- (1) By prolonged boiling with sodium carbonate.
- (2) Prolonged soaking in cold water.
- (3) Dissolving in dilute acids.
- (4) Dry re-actions.

In the acid solutions the gelatine peptones formed, so masked the other precipitates that this method was abandoned. Moreover, the small quantities of material at my disposal very much hampered the experiments.

The reactions of the filtrate from 2—1 were the same, and gave the following results:—

- (1) With barium nitrate a faint white precipitate, soluble in nitric acid.
- (2) Silver nitrate gave a fairly well marked precipitate soluble in ammonia.
- (3) Ammonium molybdate gave a slight colouration.
- (4) Ferric chloride gave a blood red colouration soluble in hydrochloric acid.
- (5) Heated with alcohol and sulphuric acid acetic ether was given off.

Dry re-actions.

- (1) Original tooth fused with sod. carb. on charcoal, and

moistened with sulphuric acid on a bright silver surface, gave no black stain.

(2) Original tooth heated in tube with sod. carb. and arsenic trioxide gave vapours of cacodyle.

There seems, therefore, no reason for supposing the salt to be copper sulphate, whilst the acetate reactions were well marked.

The next step was to produce the green colouration by artificial means.

Saliva tubes were taken and copper amalgam added, the tubes then being inoculated with cultures taken from the mouth, and a trace of lactose or dextrin added. In almost all cases, after 48 hours, a greenish tint made its appearance and gradually deepened till at the end of three weeks the colouration was most marked, the solution being acid.

These cultures gave the same reactions as the filtrates above mentioned, lactic acid being, curiously enough, not present as far as the ferric carbolate test is reliable. After a period of a month or six weeks little of the amalgam was left, a somewhat significant fact.

I have not at present sufficient material to determine the exact nature of the acetate formed under the above conditions, but from many considerations it is extremely probable that it is of an amidic nature, especially as glycocollate of copper is a well-known salt, crystallising in blue needles and obtained by dissolving copper in a solution of glycocoll or amido acetic acid—and once or twice I have seen needle-shaped crystals from the blue mass formed at the bottom of my cultures. I do not, however, wish to advance this as more than collateral evidence to a suggestion, as it is probable that other compounds are also formed, *e.g.*, peptonate or albumate of copper, but I do state, most emphatically, that *à priori* remarks of the formation of copper sulphate are misleading and unscientific, and further, that its suppose

antiseptic action depends, and must depend, upon the disintegration of a portion of the filling, a condition at once unsatisfactory and undesirable.

(A) Saliva and Sullivan inoculated with culture from mouth (mixed)	1	Good growth after 24 hours. Green colouration after 72 hours.
	2	Good growth after 24 hours. Green colouration after 72 hours.
	3	Good growth after 24 hours. Green colouration after 72 hours.
	4	Good growth after 24 hours. No colour after 3 weeks.
	5	Good growth after 24 hours. Blackened after 3 weeks.
	6	Good growth after 24 hours. Blackened after 3 weeks.
(B) Broth and Sullivan inoculated with mouth culture (mixed).	1	Good growth 48 hours. Amalgam blackened. Foetid.
	2	Good growth 48 hours. Amalgam blackened. Foetid.
	3	Good growth 48 hours. Amalgam blackened. Foetid.
	4	Good growth 48 hours. Slight colouration 2 weeks.
	5	Good growth 48 hours. Blackened.
	6	Good growth 48 hours. Blackened.
(C) Gelatin (hot incubator). From saliva mouth culture (impure).	1	Good growth 48 hours. No colouration.
	2	Good growth 48 hours.
	3	Good growth 48 hours.
	4	Good growth 48 hours. Green colouration 3 weeks.
(D) Saliva and lactose and Sullivan inoculated from broth mouth culture (mixed).	1	Good growth 48 hours. Green colouration at 3rd day.
	2	Good growth 48 hours. Green colouration at 3rd day.
	3	Good growth 48 hours. Green colouration at 3rd day.
	4	Good growth 48 hours. Green colouration at 3rd day.
	5	Good growth 48 hours. Green colouration at 3rd day.
	6	Good growth 48 hours. Green colouration at 3rd day.
(E) Saliva and dextrin and Sullivan inoculated from mouth culture saliva (mixed).	1	Good growth 43 hours. No colouration.
	2	Good growth 48 hours. No colouration.
	3	Good growth 48 hours. Green colouration 3 days.

A 1 and 2, B 4, C 4, D 1 2 3 4 5 6, E 3 gave acetate reaction. N lactate

(F) Gelatin plate inoculated with mouth culture (impure).	{	1	Green tinge to Sullivan colonies developed close up.
		2	Green tinge to Sullivan colonies developed close up.
Gelatin plate inoculated with streptococcus brevis (pure).	{	1	Green tinge. No zone.
		2	Green tinge. No zone.
		3	Green tinge. No zone.
(G) Agar plate inoculated with mouth culture (impure)	{	1	Green colour well marked. Slight zone.
		2	Green colour well marked. Zone.
		3	Green colour well marked. Zone.
		4	Green colour well marked. Colonies in zone under surface.
(H) Agar plate inoculated with pure culture streptococcus brevis.	{	1	Green colour well marked. Zone.
		2	Green colour well marked. Zone.
		3	Green colour well marked. Zone.
		4	Green colour well marked. Zone.

Broth tubes inoculated from green colouration of above plates developed a good growth in 24 hours.

RECTIFICATION OF A CASE OF PROGNATHISM OF THE UPPER JAW, ACCOMPANIED BY ANTEVERSION OF THE CORRESPONDING INCISORS.

By Dr. VINCENZO GUERINI, Naples.

On the 28th of October, 1894, Miss A. D. A., of Naples, aged 28 came accompanied by her parents, to my study to consult me about a very considerable deformity of the upper jaw.

An exceptionally pronounced prognathism and a projection outwards (anteversion) of the four upper incisors disfigured the face of the patient who waited with great anxiety the result of my examination and my opinion. One of my colleagues had told her that by coming to me, she might probably be able to obtain a modification of this disfigurement by the redressment of the teeth. But to my great regret I was obliged to destroy her hopes and illusions by

declaring that an operation of that nature was not practicable.

It was a case of osseous exuberance with an exaggerated surface of the alveolar processes, in consequence of which the extremities of the four incisors, especially the middle ones were separated from the lower incisors by a space of more than two centimetres, so that when the patient closed her mouth, not only the incisors, but also a portion of the gum remained uncovered. This unfortunate young lady had never known what it was to close her lips, and her profile was monstrous.

In order to console her, I told her that the deformity could if not totally, at least partially, be rectified by the removal of the four protruding incisors, and that after the cicatrization of the gum, artificial incisors would be placed in their anatomical position.

There being no other resource, both parents and patient accepted my proposition, and begged me as an exceptional favour to perform the operation at their house.

The following day I went there having modified my original intention, a new idea in dentistry had occurred to me in reference to this special case ; but I refrained from mentioning the fact to the patient or her family, so as not to create doubts or fears. After having prepared everything for the operation, narcosis and scrupulous antiseptis, I administered chloroform to the patient, and extracted the four incisors ; then with a bistouri I detached the entire gingival edge from their respective alveoli, commencing from the left canine to the right ; folding back this flap, I removed, by means of a small saw, an osteotome, and a file, all the external alveolar edge, and also a portion of the internal alveolar edge in the middle. Having with sublimate spray cleansed the part from the slightest detritus or clots of blood, I reapplied the anterior gingival flap ; and as towards the

centre it was slightly exuberant, I cut off the superfluous portion and with points of suture fixed it to the palatine flap.

The patient was still sleeping when the operation was finished, but on awakening, her first movement was to put her hand to her mouth, and to ask for a looking-glass.

On seeing for the first time her closed lips, and the deformity removed, she was seized with a kind of convulsive laughter, caused by surprise and joy, for, in spite of the absence of the four incisors, the face had acquired a presentable appearance.

I took my leave simply prescribing an antiseptic and astringent mouthwash to be used frequently.

The following day I found that everything had proceeded most satisfactorily, and my patient declared that she had not in the least suffered, either during or after the operation, and expressed herself very grateful.

On the fourth day I pronounced her wound healed by first intention, and having removed the sutures, promised that in a month's time, I would apply four artificial and perfectly natural-looking incisors. At the expiration of 32 days, the gums were perfectly firm, and in their normal physiological state; I took the impression of the parts and three days after, the young lady had the satisfaction of smiling and displaying a beautiful, equal and unicoloured set of teeth.

The necks of the four artificial incisors formed a slight margin at the edge of the gum; and one could have sworn that these teeth were implanted in their respective alveoli.

THE BEST PRACTICE IN LONDON.—A correspondent writing a letter from New York to the *Dominion Dental Journal* seems to have no doubt upon a question which we, upon the spot, should find it very difficult to answer. According to this authority Dr. J. Leon Williams has the best practice in London, and "stands as the most brilliant scientist—in the line he is now working—of the age."

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SHOCK.

Shock may be defined as a condition of sudden depression of the whole of the functions of the body due to powerful impressions upon the system by physical injury or mental emotion. Its more obvious manifestations are signs of lowered activity of the cardiac, respiratory and sensorial functions. Hence we find that a patient suffering from shock feels sick and faint, he trembles, totters or falls, the face becomes pale, cold and covered with sweat; the expression of the countenance is vacant yet anxious, and the respiration and circulation are weak and irregular. Shock varies in degree from the most trifling amount which rapidly disappears, to that producing instantaneous death as in the case of an electric discharge or a severe blow on the epigastrium. It varies in proportion to the age, habits, temperament and idiosyncrasy of the individual and his mental condition at the time of receiving the injury.

We in our capacity as dentists are brought into contact with all sorts and conditions of men, women, and children, and to treat them all in the same stereotyped fashion would be foolish and blameworthy. Many patients as they enter our operating rooms are suffering more or less from nervous excitement or depression sometimes amounting almost to shock, and often our knowledge of the world and of human nature has to be used to a very large extent if the work which we wish to do for them is to be brought to a successful issue. Sometimes the apparently calm appearance of a patient may be deceptive, the calmness really being unnatural, and it behoves us never to become so engrossed in the work which we have in hand as to forget that we are

working upon a highly sentient organism. We must keep a watchful and sympathetic eye to detect symptoms of nervous exhaustion and be prepared to combat the same by any means in our power, both moral and therapeutic. We have known patients—especially those recently prostrated by an attack of influenza—faint directly after becoming seated in the chair, even before anything of an operative nature had been commenced. We have known a case in which a lady patient has fainted in the chair, and whose friend on seeing her in that condition has immediately followed suit. These patients admit they are very foolish, but they do not seem able to help themselves, and must command our sympathy. Protracted operations even though comparatively painless, with the head thrown far back, seem to superinduce a feeling of faintness. Our attention may be drawn to the condition of the patient by a few restless movements, the arm may be raised and then dropped in a purposeless manner, and we find upon examining the features that the face is very pale, and sometimes beads of cold perspiration stand on the forehead and upper lip. It is our duty to conclude the operation at once, press the patient's head down between their knees, administer a dose of sal volatile and admit a draught of fresh air. Then assist the patient to assume a recumbent position and make an appointment for a future day. Patients may ask for a long appointment, not knowing how much they are able to stand. This should only be granted under exceptional circumstances, both for our own sakes and theirs. The half-hour appointment is a good and safe rule on the whole, and should in all ordinary cases be adhered to. If a large number of fillings are required when a patient is going away by a certain time, it is a good plan to insert temporary stoppings and prepare the cavities more thoroughly and fill permanently at our leisure when they return.

The question of pain is one that confronts us and worries us all the year round, and the problem of how to do the best work with the least amount of pain-giving is one which is ever with us. Speaking broadly, children before they have

arrived at the age when they have sense enough to know that what is being done is for their good, should not be hurt. Gas should be used for painful extractions, and great care should be taken in excavating carious cavities not to give pain, rather leave a certain amount of carious dentine in the cavity. Children once badly hurt or terrified will do anything to avoid a second visit to the dentist, and irreparable mischief may result. When extracting teeth under the influence of anæsthetics, the desire to do as much as possible sometimes leads to the operation being continued after the influence of the anæsthetic is spent. This is a practice strongly to be deprecated, as the shock to the patient is often very great, they lose faith in the efficacy of the drug, and look forward to a future similar operation with apprehension. Pain more or less we must all give if we do our work properly—mitigated or controlled by every means in our power, drugs, dexterity, firmness, and above all sympathy—but shock we can as a rule avoid, and it is our duty to do so.

DENTISTRY AS A CAREER FOR WOMEN.—A writer in *Hearth and Home* has been contributing a number of articles on professions open to women, and among them is one upon dentistry as a field of industry. She comes to the conclusion that there is no opening for women in this direction, and as she thinks the work infinitely more suitable for men, she writes to discourage women from entering the profession. The reasons she gives are as follows:—"The hours of standing are long and injurious to women, and both in the actual pulling out of teeth and in the making of teeth an expenditure of muscular force is requisite which is much more within the capacity of men than of women."

As regards their prospects when qualified, she remarks:—"It is difficult to say what prospects women have of making a good income as dentists. At present they are not good, and unless a woman has capital, and can keep up a nice house and afford to wait, I should not advise her entertain-

ing the idea. The best chance of a woman doing well would be for her to find some locality where no dentist at all existed. If she had no competition—and, of course, there are many places without a dentist—and if she could establish friendly relations with the doctor of the place, who would send over to her teeth cases, she might do well in time. She might get a few ladies' schools. There is, I believe, a demand for women dentists in India in connection with the medical missions, but the salaries are not large, and many women cannot stand the climate."

NITROUS OXIDE AND DESTRUCTIVENESS.—The recently formed Society of Anæsthetists might find a theme for discussion in the curious case of Edward Scott, who recently made his appearance in the dock at Bow Street, charged with breaking a window. Scott's ingenious defence was that he had been to Bartholomew's Hospital a week previously, and had all his teeth extracted under the influence of gas, and that he had not got the gas out of his head. Either Scott's head is unique—and if so he should engage the attention of our learned Societies—or the gas at Bartholomew's is of peculiar potency, and ought to be analyzed, or he was using the harmless necessary gas as a cloak for the frailty of his nature. That the magistrate adhered to this last view is evidenced from the fact that he ordered Scott to be imprisoned for a month. This term ought to be sufficiently long to put not only gas, but nonsense out of his edentulous head.

THE RECENT CASES AT DUNDEE.—In consequence of the recent prosecutions at Dundee, a wordy warfare has been carried on in the local newspaper between the champions of the unregistered man, and those who would suppress him. On the one hand he is made out to be a martyr to a power-

ful Union, while the other side of the case is represented in a plain common-sense light. It would be interesting to see a case taken up on the grounds of the unregistered man obtaining money under false pretences, namely, for leading the patient to assume he was a qualified dentist, and a criminal prosecution instituted. This would be on all fours with the notorious case of the Strand barbers. It might be very difficult to prove, however, as the ordinary informer could not assume that he was ignorant of the fact that the practitioner was not upon the Register.

THE SWISS POSTMEN AND TOOTHACHE.—It is a fact generally admitted but difficult of satisfactory explanation that the dwellers in some Swiss Cantons have much worse teeth than those living in neighbouring Cantons. That toothache is very general in some parts is emphasized by the recent declaration of the Postmaster at Geneva, who in a recent official proclamation declares that in future "toothache will not be considered an illness;" any postman who suffers from toothache and cannot work, must pay for a substitute. This is what the Postmaster says :—"To have the teeth drawn is the only remedy for this evil. But employés suffer rather than submit to the operation. They cannot work, and cause all sorts of expense on account of substitutes having to be found. This state of things must come to an end." When a Government Department solemnly announces that the only remedy for toothache is to have the teeth drawn, the condition of dental surgery in Switzerland must be somewhat defective. The real remedy for this "state of things" is to appoint dental surgeons to the various branches of the army, navy, (when it exists) and civil service. As Mr. Jonathan Hutchinson has recently pointed out, Ophthalmic Hospitals save the State many thousands of pounds annually, and in a similar way efficient dental services would also be a true economy.

AMERICAN DENTISTRY.—From the way in which “American Dentistry” is advertised, the public might be led to suppose that Great Britain was inundated by American practitioners. In the latest edition of the Dentists’ Register, however, only twenty-four names appear of gentlemen holding solely American qualifications, though of course, a good many English dentists have additional American diplomas of more or less value. The fact is that most of these advertised “American dentists” have never left the country, “for their country’s good,” and bring both “America” and “dentistry” into bad repute.

METALLIC SILVER AS AN ANTISEPTIC.—Dr. Credé advocates the use of silver and silver salts, which he has found from a year’s experience to be very effective, sure, and safe antiseptic agents in the treatment of wounds. An incision made in a surgical operation is covered with gauze impregnated with finely divided silver. When such gauze is used for ulcerated or wounded parts which secrete freely, the silver is attacked by the products of decomposition and is converted into a lactate of this metal, which, though an active neurotic agent, is very irritating. Open surfaces, therefore, of some standing are covered at first by powdered citrate of silver (itrol) and then excluded from the air by the silver gauze. The results, he asserts, have hitherto been very good, and he regards the silver dressings as being most reliable in the treatment of all forms of wound. Silver bands round the roots of teeth affected with pyorrhœa alveolaris have lately been recommended as a cure for this disease, and we certainly think that the employment of the silver salts as a dressing deserves a fair trial.

FOR SEPARATING TEETH.—Use a little piece of sea-tangle tent, wedged tightly in the cavity or between the teeth. It is much nicer than rubber and does not produce nearly so much soreness of the teeth.

H. H. Gantz.

Reviews.

The American Text-Book of Prosthetic Dentistry in Contributions by Eminent Authorities. Edited by Charles J. Essig, M.D., D.D.S. Royal 8vo., cloth 26s. London: Thos. Lewin & Co.

This is a large and important work of some 700 pages and illustrated with 983 engravings. Of the twenty-one chapters into which the work is divided, the Editor is responsible for six, Dr. H. H. Burchard for eight, and the remaining seven are by six contributors of repute.

There are other works which go more deeply into certain branches of mechanical dentistry, but we know of no other publication of the size which is so comprehensive, and while giving almost everything of importance in prosthetic dentistry yet does not go unnecessarily deeply into history, chemistry, metallurgy and physics.

The work begins with a chapter on the workshop, with descriptions of furnaces, blowpipes, tools, etc. Then we have a chapter on the Properties of Metals, formulæ for gold plate, and gold and silver solders; alloys and their various uses; working, hardening and tempering steel; amalgams, with formulæ, and a capital dissertation on copper amalgam, and on cement fillings with formulæ. Sheet metal work is next written upon, chiefly in relation to regulation appliances without plates, appliances for elongating or shortening teeth, etc. This chapter is profusely illustrated and most instructive in various methods of regulation. The making of artificial teeth is next dwelt upon, the materials and formulæ for bodies, colours, enamels, etc. and furnaces, for making artificial teeth and continuous gum work. This section is also well illustrated and makes, with the chapters on continuous gum dentures, artificial crowns, and "the assemblage of united crowns (bridge-work)" a very complete summary of this branch of work up to date. The chapters on the preparation of the mouth, choice of material, impression taking, hygiene of the mouth, making models, dies, and on moulding, are all excellent, although one cannot expect to read anything particularly new on these subjects. Plaster is recommended as the best medium for impression taking; irrigated plates for sensitive palates are not mentioned, vacuum chambers

are faintly praised, which is perhaps all they deserve. The chapter on articulation and normal and abnormal bite is as good as anything in the book, and is well illustrated.

Several hints may be picked up in the chapter on selecting and fitting teeth, and repairing dentures, while a chapter is devoted to the use of English tube teeth in plate, crown, and bridge work. The chapter on aluminium is short; so far its drawbacks seem to more than counterbalance the usefulness of this material. The chapter on vulcanite is very thorough, though we see no mention made of the steam swager in contour work. The use of vulcanite *per se*, and in conjunction with the precious metals as well as with aluminium and fusible metal is well handled, while its employment in regulating teeth, and in making interdental splints is entered into fairly fully. We consider the elaborate tables given in "Temperamental characteristics" savour somewhat of "hair splitting," a few broad general rules with a dash of common sense being perhaps all that is necessary in choosing and arranging artificial teeth. The instructions in preparing roots therapeutically and mechanically for crowns are elaborate and well illustrated, while the chapter on cleft palate embraces the chief part of what is known on the subject. In the chapter on celluloid and zylonite the author praises the latter material which he says is an improved modification of the former. He recommends the use of dry heat and says—as compared with celluloid—"zylonite is superior, the colour is better and always uniform, there is a translucency in it not found in celluloid, which is dead in colour. Celluloid has a tendency to scale or disintegrate, this is not the case with zylonite, in fact this material in combination with single teeth, and mounted on metallic lining has given as much satisfaction as any other base."

Speaking of bridge-work, Dr. Burchard, in dealing with the *pros* and *cons*, sums up the matter in a way which we cannot do better than quote. "The work has unquestionably a great field of useful application. Cases there are in which this type of fixture is a well-defined need, and others in which it is clearly contraindicated. The first enquiry of an operator should be, Is a bridge demanded by the conditions present? That is, Does a bridge device possess for the case in hand sufficient advantage over a plate denture to render its use an imperative indication? Upon this point turns the entire subject of the wisdom or unwisdom of bridge-work." We think if this clear and common-sense rule were

more frequently acted upon, we should see fewer bridge-work failures.

While objecting to the title of the book, and protesting against the idea of any nationality assuming a prerogative in any science, we have on the whole nothing but approval for this work. Perhaps if some of our foremost workers in prosthetic dentistry had been called in collaboration, some things not wholly unimportant, and for which we have sought in vain, might have found a place. We have seen nothing better in the way of illustrations, while the print is clear and the binding good. For a commodious book of reference, and a guide in the various branches of mechanical dentistry, we can recommend this volume with satisfaction.

Practical Dental Metallurgy. By Joseph Dupuy Hodgen, D.D.S. San Francisco: The Hicks-Judd Co., 1896.

A sub-title describes this work as a text and reference book for Students and Practitioners of Dentistry, and it may certainly be recommended as a useful publication. It seems to cover the ground well, and the lists of experiments suggested to be carried out by the student, give a practical aspect to the pages. No doubt with the introduction of an examination by the College of Surgeons in this subject, there will arise a demand for text-books of home manufacture. The present author seems to have well selected his material from the dental point of view in the 300 pages he has allowed himself.

Bacteria of the Sputa and Cryptogamic Flora of the Mouth. By Filandro Vicentini, M.D. London: Balliere, Tindall, and Cox. 1897.

This book has been translated into English by the Rev. E. J. Stutter and Professor E. Saieghi, and there is also a Preface by Dr. Miller, of Berlin. Whilst recommending that Dr. Vicentini's work should receive a careful perusal, Dr. Miller is candidly sceptical as to the correctness of the deductions, for he has found nothing which "justifies the conclusion that not only all bacteria found in the human mouth but that

even the pneumococcus, bacillus tuberculosis and gonococcus are simply derivations of the same normal organism." This was, if we remember rightly, the view also taken by Mr. Howard Mummery when he read a communication some three years ago before the Odontological Society. Both Dr. Miller and Mr. Mummery had, however, found appearances similar to some of those described by Dr. Vicentini.

The book gives interesting descriptions of the work the author has done in investigating the sputa of whooping-cough and other diseases. The greater part is, however, devoted to an elaboration of the theory that the different forms of bacteria in the mouth are derived from *Leptothrix Racemosa* by various modes of "fructification" and cycles of reproduction. In an appendix there is indeed a modest deprecation that the author should be regarded as holding his theory too strongly. He thinks the present moment premature for pronouncing a definite opinion on the subject, and he also refers to other authorities who have previously made suggestions in the direction of the theory propounded.

There are four plates of illustrations crowded with beautiful drawings, many in colour. The price of the book is seven shillings and sixpence.

OBITUARY.

JAMES SALTER, F.R.S.

This distinguished dental surgeon was born at Poole, in Dorsetshire, in 1825, and was the nephew of Thomas Bell, who lectured on Zoology and Dentistry at Guy's Hospital. The uncle retired in 1862, and James Salter succeeded to both the private practice and the Hospital appointment. He was educated at King's College, and was M.B. of London University. By his observations and writings he did much to elucidate many points in Dental Surgery, and to educate the medical world thereon. His work on "Dental Surgery" is still referred to and consulted, and it is not unusual to find it quoted at Society meetings, when critics wish to prove that the reader of a paper has been anticipated in his "discovery." Amongst his numerous contributions to Dental Pathology were papers on "Dentine of Repair, and the laws

which regulate its formation," "Papillary Tumours of the Gums," and "Affections of the nervous system dependant upon diseases of the Permanent Teeth." His observations upon Phosphorus Necrosis and the relationship between dental lesions and the Exanthemata must not be forgotten.

Mr. Salter retired from practice in 1881, and settled at Basingstoke, in Hampshire, where he took a great interest in local charitable and benevolent affairs. For some years he had been in failing health, and died on Feb. 28th. He is still remembered at Guy's as a handsome, courteous gentleman, fond of scientific society and Club life. He resided in the house formerly occupied by Sir Astley Cooper in Old Broad Street, and whilst fond of the country in the hunting season, rather feared it in the summer time on account of his susceptibility to Hay Fever.

At the March meeting of the Guy's Dental Society, the President, Mr. Montague Hopson, gave an appreciative sketch of Mr. Salter's life, and concluded as follows:

"In Salter this Hospital has lost one who added much to its prestige, and we, as dental men, have lost one who by his distinguished achievements and labours in the past contributed largely in placing the dental profession in the recognised position that we find it to-day. May we not then endorse the words of our senior Governor when he says, 'Examples of rare intelligence, yet more rarely cultivated, are not lights kindled for a moment, they live on here in their good deeds and in their venerated memories.'"

AN ARTISTIC CROWN.

Fit the band to the root and cut it down till it just clears the opposing teeth. Contour to suit, place on the root, fill up with wax and take an impression in plaster of that side of the arch, also of the same portion of the opposing jaw. Mount the casts on an articulator and curve up the surface of the crown—preferably in pink paraffine and wax—to a perfect articulation with the opposing teeth. Make fusible metal dies and strike up the cap in pure gold of from 33 to 35 gage. The cap should telescope slightly over the band.

Abstracts of British & Foreign Journals.

PULPITIS.

By "AN OLD CONTRIBUTOR."

A specially sensitive tooth, is one whose tissues are in an irritable condition, and this is either the initial step in, or a positive stage of, an active inflammation. The irritant may be any one of a long list.

Caries has perhaps invaded the tooth, and micro-organisms have penetrated the tubuli, becoming themselves the irritant, or exposing the deeper dentine and the pulp to the irritating action and the thermal changes of external agents.

It may be that an inserted filling is this external irritant.

There may be recession of the protecting gum tissue at the cervical portion of the tooth.

A traumatic injury, a blow, inordinate action, or the attrition of mastication, or any mechanical violence, may be the source.

Structural changes within the tooth pulp, such as the formation of calcific deposits, are a sufficient cause.

Whatever may be the source, there will be a determination of blood to the irritated pulp tissue, and an engorgement of its parenchyma. Because of the absence of the usual arterial and venous coats, the blood channels at once yield to the pressure. There is not the usual vaso-motor system of nerves to control the resilience of the vascular system, and diapedesis, or the escape of the elements of the blood into the pulp tissue, is materially modified. It does not at once take place in the usual acceptance of the term, but a stage of active engorgement of the blood channels ensues. The dental pulp, like the brain, is without the usual lymphatics of the absorbent system, because the modification of the blood supply in a measure makes this unnecessary, but the comparatively unrestrained yielding of the blood channels, and the retardation of the infiltration of the parenchyma of the pulp, allows for a return to a physiological state, if once the irritation cease, without the necessity for the usual process of resolution, through the activity of the lymphatics, for the relief of the hyperplastic condition. It follows, then, that the treatment of ordinary pulpitis, after the removal of the irritating cause,

should be directed toward the relief of the congested condition, by in some manner deflecting the determining blood current, and allowing the engorged vessels to empty themselves. So long as the possibility for this exists, it is quite possible to preserve the vitality of an inflamed pulp. When the pathological condition shall have proceeded to an extravasation into the body of the tissue, there are no lymphatics to take it up, and its removal is as impossible as are effusions in the brain. Pulp capping under such circumstances will be a hopeless proceeding, and the presence of any infiltrated matter will contra-indicate it. The fact that some pulps become fully exposed, and their limiting tooth walls are broken down without either pain or special sensitiveness, may be accounted for through their never taking upon themselves real inflammatory conditions, because of a modification of nerve structure greater than that which is usual.

Dental Practitioner.

ARTIFICIAL DENTURES.

Young practitioners in dentistry are always exceedingly anxious concerning the fit or adaptation of their first artificial dentures, and when they do not prove to be satisfactory and are too easily displaced in practical use, the failure is ascribed to a lack of adaptation, another impression is taken and the plates remade. We have in previous numbers of this journal called attention to the great probability that the lack of success in many cases is due to mal-occlusion, rather than to a poor fit. An upper plate is inserted in the mouth in which there are but the anterior lower teeth. No special provisions are made to secure a direct occlusion, but the natural lower teeth are made to close against the lingual side of the artificial teeth, or the sloping surface of the plate. Of course such an inclined plane must force the denture forward until adhesion is lost, when it falls in the mouth.

If there are artificial bicuspid and molars below, the artificial teeth may be so adjusted that they slide upon some projecting point, or the inclined surface of a natural tooth, and any force that is then used in mastication has the natural tendency to drive the denture out of its place, either posteriorly or anteriorly. Perhaps there is an inclined plane on both sides, and the plate with a direct adhesive force of

five or six pounds is expected to retain its place against an oblique energy of thirty or forty pounds.

Every dentist knows that in the natural denture no tooth falls into line exactly opposite another, but rather "breaks joints" with it, the first lower pre-molar shutting between the upper cuspid and the first upper pre-molar, this arrangement being preserved throughout. Each tooth in that case is prevented from sliding on its antagonist, and is simply held without effort. If cuspids or pre-molars were to occlude point to point, there would not be force enough in the jaws to prevent them from sliding either one way or the other. Therefore, in arranging artificial teeth, special care should be taken to see that there are no inclined planes of occlusion, or if one is found to be unavoidable, another in the opposite direction should be arranged to counteract it.

An artificial tooth should never be arranged to bite directly on another. That is, their vertical axes should never be in line. Perfect occlusion is impossible when this is the case, and their occluding surfaces must either be ground down flat, or they will slide forward or backward. Each tooth must bite on two opposite ones. The cusps are so fashioned that they naturally fall into place between the opposite teeth, and thus interlock in a manner that prevents sliding when they are in contact.

Sometimes it is difficult to arrange this when artificial teeth occlude with natural ones, but it can always be secured either by changing the arch of the artificial teeth, by leaving a space between them, or by carrying the centre a little to one side. Of course, when gum section teeth are used, the spaces between them cannot be changed at will, and that is why mastication cannot be as well secured with them as with single plain teeth. But the arch or centre can be so changed as to make occlusion comparatively good.

Another reason why artificial dentures are sometimes failures is that the parts representing the alveolus present to the muscles a convex instead of a plain or concave surface. When the lip must fall over a rounded contour, the natural tendency of both the longitudinal and transverse fibres of the orbicularis oris muscle, and those of the others which blend with it, is to force the plate down. Let the surface of the plate that is under the lip be flat, the upper border not being filed or ground down to a knife edge.

The same rule should be followed in shaping the surfaces against which the lateral borders of the tongue rest. They

should even be concave, that the tongue may lie easily in the space, and assist in holding the denture in place. Much of the difficulty in speaking that sometimes follows the insertion of artificial teeth, is due to the unnecessary thickness of the plate at the points representing the lingual alveolus over the roots of the pre-molars and molars. In making rubber plates, too much material is used where it is not needed for strength, and the plate is thus rendered heavy, clumsy, in-artistic, and difficult of retention.

Many dentists, especially those who are young in practice, wax their rubber cases too far towards the points of plain teeth. Those that are just about long enough to reach to the alveolar ridge should be selected, and then on their labial aspect they should be waxed only high enough barely to engage their external base. It is much easier to finish them, they look far more artistic, and they are lighter. The incisive and canine fossæ should be well marked, to afford a proper lodging place for the decussating fibres of the buccinator, and for the longitudinal fibres of the levator muscles. The margin in these regions must be cut down, while the canine eminence is marked by carrying it higher in that locality. When these rules are observed the plate will not only be more artistic in appearance, but it will be retained in position much more easily.

Ed. in Practitioner and Advertiser.

THE BRITISH DENTAL ASSOCIATION AND CONTRAVENTIONS OF THE DENTISTS' ACT.

From time to time public attention has been drawn to dentistry and the ways of dentists. It may be more commonly done by the seductive and cunningly-worded advertisements that emanate from those practitioners apparently best fitted for a liberal patronage, or it may be in misdirected sympathy with one who has too long been permitted to pose as a dentist.

So long ago as the year 1841, a pamphlet was published showing the necessity of the Legislature recognising dentistry as a legitimate branch of the medical profession, and advocating the suggestion that no person should be permitted to practise as dentist until he had undergone a qualifying examination by the Royal College of Surgeons. Closely followed a praiseworthy attempt to form a dental society; but the strong professional jealousies which then prevailed were too powerful for the achievement of the scheme, which unfortunately had to be abandoned; and, apart from making a feeble effort in the shape of a memorial to the Royal College of Surgeons in 1843, presented by a dozen gentlemen, politically the profession remained in a state of complete

lethargy for many years. Constantly, however, views were being expressed, as opportunity occurred, favouring a better status for dentists, with the result that in 1875, at a meeting held in Manchester, the Dental Reform Committee was appointed on the following resolution:—

“That it is desirable that a committee be formed to see what steps can be taken to arrest the continued influx into the profession of illegitimate practitioners, by the adoption of the principles of registration and compulsory education.”

Three years later saw the passing of the Dentists' Act; and this devoutly-to-be-wished consummation was followed in 1879 by the formation of the British Dental Association—both undoubted boons being the result of the establishment of the dental diploma. The means of education speedily advanced. Schools of dentistry, with ready-made diploma-ed men attached, sprang up with surprising rapidity in the provinces; and it was confidently hoped that the long-continued toleration of quackery was doomed, or at least was a question of months, not years, and that the unqualified who were then residing in a rogue's paradise would soon be ejected from their temporary Elysium.

It had been frequently stated, previous to the passing of the Act, that not more than 2000 persons were in bona-fide practice as dentists in the United Kingdom; but on the publication of the first Dentists' Register, printed under the direction of the General Medical Council, a scrutiny of the list disclosed the extraordinary fact that 5298 individuals had actually declared themselves to be practising dentists—an increase of over 3000 in eighteen months. In that year mushrooms hadn't a chance with “dentists.” Of this total it appeared that 2049 were either chemists or chemists' assistants. In one town alone 243 persons registered themselves; and of this number only 23 held the Dental Diploma required by the Royal College of Surgeons. In another district, on a total registration of 237, 40 were chemists who extracted teeth only—“Sequalah” could do that, after a fashion—two of the others were retail beer shopkeepers, who believed that drawing teeth would vary the monotony of drawing beer, whilst a goodly number of the fair sex were graciously permitted to legally cure all the ills that teeth are heirs to—whether by vulcanite, “succedaneum” amalgam, or “new flexible gums”—a department of “woman's work” till that time entirely neglected by the advocates of the female invasion of man's domain.

All this was particularly disheartening to the younger generation of legitimate practitioners; but the older and presumably wiser heads of the profession were strong in the assurance that time would oust this untrained host from dental practice, and that the Act and the Dental Diploma combined would quickly educate the public, to the confusion of the quack. About this period, Mr. Alfred Hill, in the concluding pages of his “History of the Reform Movement in the Dental Profession in Great Britain during the last Twenty Years,” put the state of affairs in a very true light when he wrote: “Like many other things, the future of dentistry in this country is in the hands of the young men of to-day. It will become just what they resolve to make it. A trust has been placed in their hands which it is quite competent to them to honour or dishonour;” and another eminent English dentist has declared, with no uncertain voice, that “To pursue organised quackery into its dark and foul recesses, and drag it into the light of day, is a disgusting task, but very necessary—a task in which, in my opinion, every decent member of the profession ought, in spite of natural loathing, to take a part. This is, it seems to me, particularly incumbent upon successful men—men who have attained high professional position, and whose social status is assured. Such men's motives cannot be easily impugned, nor can their actions be ascribed to selfishness or jealousy. They and

we all, owe it as a duty to the public, to our common profession, and more particularly, perhaps, to the band of bright young recruits who, in the improved position of dentistry, are becoming attracted to our ranks. If only for the sake of these young men, we ought to strive that, after devoting years to educate themselves as members of an honourable profession, they shall not find themselves in a department of practice which, if it may be considered less important, can be fairly called less reputable than any other branch of the medical profession; that if not proud, they shall not feel ashamed of the title of dentist, and that they at least shall not—as some of us now may—feel dishonoured or humiliated by the designation.”

The Dentists' Register of to-day contains 4933 names; and of these—it will scarcely be believed—3452 are without any qualification whatever, either medical or dental. The latter number will, of necessity, be a diminishing quantity from year to year, owing to death and other causes, until in a long space of time only those will be on the Register who have been fully qualified by examination. There are, of course, many thoroughly-trained dentists at present registered who have taken no diploma; their local reputation will suffice to indicate them as well as their value. Others, on the strength of registration, parade their many virtues by advertisement, as is evidenced by a gentleman of the dental profession, rejoicing in the euphonic appellation of Jabez Crabtree, who advertises himself in England as “grocer and dentist.” It is a question if men on the dental Register should be allowed to advertise any more than men on the medical Register. We see no reason why the former should hold a privilege denied to the latter.

Unqualified assistants represent—or rather misrepresent—these “general advertisers” in the “happy hunting grounds” of popular seaside and inland resorts. These so-called operative assistants are, without exception, lads who have shown a little business capacity during their sojourn as mechanics in the dental workroom. With no operative ability whatever, either practical or theoretical, they are launched upon a too-confiding public upon a weekly wage, with a commission upon their “drawings,” notwithstanding the fact that a few years ago a warning was issued from the General Medical Council to every registered dentist in the United Kingdom pointing out the penalties liable to be incurred by the employment of unqualified assistants—operative representatives of the traders in artificial teeth, who soon learn the monetary value of running a show of their own; and men who never saw America, far less its dentistry, pose as the only legitimate successors of Columbus in their supposititious discovery of methods peculiar to that country. There is no finer stalking horse used by a certain class of dentists than the term “American dentistry;” and in a recent pamphlet reprinted from the “Pall Mall Gazette,” the author fittingly writes:—“No nation has a monopoly of any system of dentistry. The phrase has even less significance than ‘French polish’ or ‘Vienna bread.’ There is no dental system, either practical or theoretical, peculiar to, or emanating from, America. The words are the shibboleth of a certain class, and practically have no other meaning than ‘Advertising Dentist.’ What is known as bar and bridge work, and, with great effrontery, is claimed to have had its origin in America, has been practised in Europe more or less for centuries. The objections to this class of work, however, are so serious that practitioners with English diplomas rarely resort to it. Nor is it so very extensively practised even by those who advertise it as their speciality.”

In Scotland, from Berwick to the Borders, almost every town or village has now its unqualified, unregistered practitioner. One town in Perthshire, which is extensively patronised by visitors, publicly boasts the possession of two resident evaders of the Dentists' Act. Further north

and further south, other popular resorts, with probably fewer visitors, supply only one resident empiric as a possible attraction, or in lieu of one resident, two others descend upon the town once or twice a month, prepared to take in patients from the country, and supply their wants in one visit. These visits are heralded in the local prints along with egotistical and self-laudatory circulars, clearly setting forth what can be done for a shilling, with a reduction on taking a quantity. There is no extraction of stumps. You pay your money first, and with a bit of luck you may get your written guarantee—and your teeth (?) afterwards.

Altogether, the young qualified practitioner has an anxious time in striving to do class work with the unfair competition of those cheap-jack gentry facing him at every turn. Locally, sandy soil seems peculiarly suitable ground for the nourishment of the pirate trader in dental specialties. He may be one who has failed to pass the very necessary dental examinations required by the Royal College of Surgeons. His name, however, is in the local directory, followed by the title, "dental surgeon." He may be a student practising a little further east, who assumes the title of dentist. Still further east, where golfing foursomes love to congregate, another student failure has built a practice upon the sands. His purely amateur practice is on the residents, not on the links, for which the links ought to be truly grateful. It has a morbid look—that inscription "Teeth! Teeth! Teeth!" emblazoned on the gate.

The Scottish Branch of the British Dental Association was reconstituted in June 1895, previous to that, two branches being in existence—one in the east and the other in the west country. Its objects are similar to those of the parent Association—namely, "the maintenance of the spirit and provisions of the Dentists' Act by such lawful means as may be necessary," and the general consideration of subjects affecting the interests of the profession. Then followed the appointment of a sub-committee divided into two sections, for the east and the west districts of Scotland respectively; and these committees were to take cognisance of all matters affecting the dental legal interests of practitioners and others in their respective districts. Especially in the east, little work on this head has been accomplished, not for want of material, as case after case of illegal practice has been brought before the committee; but the gentlemen who form this committee are apt to be absorbed in their large practices and to rest on their great reputations, to the detriment of the younger generation of truly professional dentists. It is unfair to ask these young practitioners to enter boldly into competition with the longer-practised charlatan who sometimes may have been his fellow-student at the same school. The day has come when the British Dental Association is asked to justify its existence. It is about time, too, as already at Brighton no less than seven summonses for illegal practice have been heard within the last few weeks, while at Swansea there have been five similar prosecutions, and the British Dental Association had absolutely nothing to do with the trial. The registered dentists in the individual districts were the prosecutors, and were practically successful in every case.

Not a minute too soon, the Association has made a start in Scotland, and the result of the recent prosecutions in Edinburgh will, it is to be hoped, encourage the Association to draw more blood. Under such circumstances as these, when we consider that the British Dental Association was formed more as a political engine than as a scientific exponent—when we see individual practitioners taking up and prosecuting the work which it was believed the Association itself should accomplish—it remains for the younger and more active men of the profession, who are members of the Association, to stir up their fossilised brethren to a full sense of the duty imposed on them of extirpating the irrepressible quack, who, locally, is as easily got at as a "Strand Barber," and, in his illegal practice, is quite as deadly.

Edinburgh Evening Dispatch.

THE JUBILEE OF THE EDENTULO US.

The Editor of *To-day* says:—"I fear I shall be regarded as a suspicious, unsympathetic person, but I do view with a certain amount of distrust a proposal put forward by an Edgware Road dentist for honouring the Diamond Jubilee of Her Most Gracious Majesty Queen Victoria, in commemoration of our Queen's sixty years' reign. As his humble gift towards alleviating human misery, he wishes to present sixty sets of artificial teeth to sixty old women of sixty years of age and upwards. He wishes me to make public his offer. I fear that if I did so, I might be inundated with similar applications from persons whose motives might not be so entirely disinterested as those of my correspondent. Some hair-restoring gentleman would want to operate on sixty bald-headed, necessitous old gentlemen, and would request me in my notes to refer to his world-famed lotion. Soap manufacturers would fight with one another in their efforts to wash old and necessitous men and women, and I should be asked to publish pictures of the various ladies and gentlemen before being washed with Puppy brand soap, and after being washed with Puppy brand soap. Even my desire to aid in the success of Her Majesty's Jubilee will not lure me to these lengths."

ALLOY AND CEMENT FOR FILLING.

By W. E. DRISCOLL.

Procure good alloy and cement; mix the alloy as dry as will work well; press into a flat button, the thickness of a silver dime, for an ordinary cavity. Mix the cement so as to bring it to its stickiest condition; then, the cavity having been dried and kept so, fill with the cement, and quickly, before it begins to set, press onto it a plate of amalgam about the size of face of exposed cement. Press this plate into the cavity, allowing cement to escape slightly at all parts so far as practicable. With the ball end of very small burnishers perfect the union of amalgam to the edges of the cavity, and then concur by the addition of necessary amalgam. Experience with this plan for over eleven years gives me such faith in it that I have not filled a single cavity with amalgam without the cement for five years past.

This use of cement saves much discomfort to the patient from making undercuts or retaining points; also from thermal changes, and other advantages enumerated above.

Items of Interest.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, March 1, 1897. Mr. John Fairbank, Vice-President, in the Chair.

The SECRETARY read the minutes of the last meeting, which were confirmed.

Mr. ROBERT STEPHEN FAIRBANK signed the obligation book and was admitted a member of the Society.

The following gentlemen were elected members of the Society. As resident members:—Kenneth Weldon Goadby, L.D.S.Eng, 6, Holly Villas, Holly Road, Leytonstone; Henry Wood, L.D.S.I., 196, Selhurst Road, South Norwood. As a non-resident member:—John Brodribb Parfitt, L.R.C.P. Lond., M.R.C.S., L.D.S.Eng., College Road, Reading.

The LIBRARIAN reported the receipt of *Guy's Hospital Reports* for 1896, and the *Transactions of the American Dental Association* for 1896.

CASUAL COMMUNICATIONS.

Mr. C. ROBBINS mentioned the case of a gentleman who applied to him for a little apparatus that would interfere with his articulation in order to prevent him talking in his sleep. He was a Government official, at present home on leave from foreign service, and having to live in a bungalow, where the partitions between the sleeping rooms were very thin, he was afraid that he might divulge some official secrets. Mr. Robbins took a model of the mouth and found fortunately that on each side of the upper jaw there was a bicuspid missing. He made an ordinary little vulcanite plate with two teeth and with a couple of gold collars in order that the apparatus should remain firmly fixed and not get loose in the night. He then tried to arrange a little metal flap having a long and a short lever, his idea being that the short lever bent down somewhat would readily displace the long lever when the tongue began to wag. It was arranged with a brooch joint in the vulcanite palate. He found, however, that it did too much and wagged when he did not want it to. He went to work again, and by simply making a little alteration, taking a rubber dam weight and reproducing it in

vulcanite and adding it to the plate, with the polished rounded protuberance drooping downwards and slightly backwards from the palate, he found it worked so well that the patient had asked him to duplicate it. He exhibited the contrivance, and thought it might be worth while to find a corner in the museum for such a novelty.

Mr. J. H. Badcock then read a paper on "Copper Amalgam" which was published in our last issue. Following this was a communication by Mr. K. W. Goadby on the "Discolouration of Copper Amalgam," which appears at page 337.

DISCUSSION.

The CHAIRMAN said they had had two very interesting papers read, and he hoped that they would have a good discussion. The subject was a practical one, and one which all in practice could speak upon. As far as his experience went, he certainly had nothing particular to say in favour of copper amalgam. He did not know whether there were any dental surgeons in England who devoted themselves to amalgam to the exclusion of gold fillings, but there were, he thought, in America, dental practitioners who devoted themselves exclusively to amalgam fillings. He had seen some of their work, and in these few instances he had never seen a single flaw anywhere. The approximal cavities in the masticating surfaces of the teeth had all been perfect, and it struck him at the time that if extraordinary care were taken in the preparation of the amalgam, and if equal care were taken in inserting the amalgam as was taken in inserting gold, the latter material, except in the front of the mouth, might be done away with. He had occasionally seen very successful copper amalgam fillings, but most certainly the large proportion, as far as his experience went, were failures, besides being very unsightly. That was especially the case in cavities extending under the gum.

Mr. F. J. BENNETT said that with regard to the copper amalgams, he thought some discrepancy might possibly arise from the different varieties used. He had lately tried that which was sold as Rogers' amalgam, but he had gone back to the old Sullivan's amalgam, which was sold in the green packets, and although by no means always a successful filling material, his experience had been that where copper amalgam at all was to be used, the old Sullivan's amalgam wasted less and was more satisfactory than Rogers'. He thought Rogers' amalgam did not stain so much, but he fancied it dissolved

away more at the cervical edge. He mentioned these points because he thought they might explain some of the differences of opinion that appeared to exist between many of the writers quoted by Mr. Badcock. He thought some of the vices of copper amalgam might be due not to the copper amalgam alone, but to the metal copper acted upon by any acids there might be in the mouth. That brought him to the question as to going into those matters of copper amalgam or any amalgam they were not restricting the subject too much—whether they knew, in fact, enough about the pure metals themselves, apart from amalgams. Lately Professor Roberts Austen, had been going to the very foundation, and asked not only whether it was known what an alloy was, but whether it was known what a metal was. In so-called solid metals some of the molecules were supposed to be in a fluid condition. In the event of a Committee being formed, he would advise them if possible to follow out the question in as broad a manner as possible, and not restrict themselves either to copper, or to any amalgam, but investigate the question of the pure metals themselves. For the larger the enquiry made the nearer they would get to a definite conclusion.

Mr. HUNT differed from Mr. F. J. Bennett. He thought the paper was distinctly on the merits and demerits of copper amalgam, and that was a sufficiently large subject to engage the attention of the Society for some time to come. He thought the papers had most admirably summed up the question. The very fact of copper amalgam having been before the profession for more than fifty years, having been pooh-pooed by some, and regarded as a perfect sheet anchor by others, men who were able and capable of judging, perplexed him as it had perplexed many, and he thought that the matter should be more carefully gone into. With regard to the properties of the metals, and whether a solid was a solid, those were very interesting metaphysical questions, but they did not affect the question under discussion. In London they were able to put their hands upon absolutely pure metals—there were but two under discussion, the one was copper, the other mercury, therefore the question was narrowed down to those two metals—and they should endeavour to see whether they could not find out some of the reasons for the peculiarities, and some of the causes that lead to the marvellous failures, and some of the causes that lead to the equally remarkable successes. It had been pointed out that there were differences in mouths, and that where the surface of a

Sullivan amalgam, properly introduced, was found to be bright and brilliant, there would certainly be wasting and failure ; in other cases where the surface rapidly becomes black, it was often found to be a success. That had been his experience, and no doubt that of many others. He was glad to find the old bogey sulphate of copper dismissed for ever. He thought the careful observations and chemical researches in the papers had thrown a great deal of light on that question, and he was personally much indebted to the author of the second paper for his work on the subject.

Mr. F. J. BENNETT said he did not wish in the least degree to say that the present discussion should go into the question he had mentioned. He merely said that if a Committee were appointed, it might be wise to go into further particulars.

Mr. CLAYTON WOODHOUSE said he was always brought up to believe that Sullivan should never be used in any interstitial cavity, and when he came on to the staff at the Hospital he was horrified to see the way in which Sullivan was used by students. He thought he had now warned almost every student against its use in interstitial cavities. He himself confined its use almost entirely to temporary teeth and to crown cavities in wisdom teeth.

Mr. MARTIN HENRY said there was such an inequality in the samples of amalgam that it seemed to him very difficult to find a proper standard. He thought it would be better, instead of working out the mercury, to mix some submarine fillings to take up the excess. He thought that was better than putting a facing of amalgam on to the Sullivan.

Mr. HUMBY said from the number of failures that one saw in practice, but one opinion could be formed of the value of copper amalgam. With regard to some of the so-called successes, he drew attention to the fact that it was not always easy to make certain of the character of an amalgam ; many fillings supposed to be copper amalgams were not always so. If it were a difficult thing to secure a permanent filling he could understand men using such a dangerous compound as copper amalgam ; but it was very well known that it was a simple thing in the present day to select a material which should answer all purposes except that of colour. With the aid of the oxyphosphates a filling could be obtained which would give all the results desired. The vices of copper amalgam were introduced to his notice in the first instance about twenty years ago, when he was asked if he had ever found it waste and wear away at cervical edges. He said he

had done so, and he concluded it was his own inefficient work but he was told that that was not so—it was the character of amalgam, and he subsequently found that that was perfectly correct. He then mentioned a case which occurred in his practice illustrating the trouble from staining which might result from using copper amalgam in front teeth and he thought that in young teeth where the texture was not so dense there was a tendency for the whole substance of the tooth to discolour in a very rapid manner. He did not consider, if a committee were appointed to consider anything, it would be spending its time usefully in considering copper amalgam, because a committee had already been appointed, viz., their patients and their experience in the past, and surely they had had sufficient evidence before them to justify them in abandoning the filling.

Mr. CUNNINGHAM thought everyone would appreciate the motive that had impelled some men to speak that evening, beginning first of all with the reader of the paper, Mr. Badcock. He thought the point where Mr. Badcock touched upon the teaching in the schools, showed very clearly that there was something wrong. Similarly, he sympathised with the feeling which actuated Mr. Humby to say what he said, although at the same time he had to disagree with him. Copper amalgam was not an impostor, and he for one should not put copper amalgam away, but use it as he had used it already. To a very great extent he endorsed everything that had been said in the paper, except Mr. Badcock's conclusions. He had evidence before him that copper amalgam has lasted in certain cases, from the years 1884-5-6, and he found in looking over the records that even at that time he was in the habit of lining the cavity with copper amalgam, and filling the upper part with an alloy of good edge strength. The point was that having found out copper amalgam possessed tooth saving properties, but was on the other hand weak in some respects, he adapted on the top of copper amalgam a good edge-strengthening alloy, and for many years he had been using the two in combination. Gradually he had been reducing the copper amalgam more to a lining, and had brought it up to the edge. He did not think any paper on amalgam should pass over such an important work as that by Professor Flagg in his investigations of plastic materials. With regard to the point of Professor Miller's theory that the tooth saving was due to the germicidal character of the copper amalgam, that of course might be exaggerated, but as

it was it coincided with experience. He agreed with the essayist that the physical quality was the greatest feature of the copper alloy. It had the great quality of maintaining its position and close adaptation to the wall. At the same time it would be admitted that if there were leakage, or if there were any cavity formed where the germs could obtain access, then a filling material which had a germicidal power was, other things being equal, better than the one that had not. He thought Mr. Goadby was under some great misapprehension. He did not know where Mr. Goadby had acquired his information about the copper salts and the question of green staining. He had himself never seen green staining in any cases he could remember with regard to copper amalgam. He had seen it in some teeth, and accounted for it there by the fact that the fault was with the dentist. He did not think Mr. Goadby had done justice to the experiments of Miller. He happened to be with Professor Miller at that time assisting him in his laboratory in Berlin when those experiments were being carried on, and the use of the copper sulphate had nothing whatever to do with Professor Miller. It was entirely a suggestion of his (Mr. Cunningham's) own. It would be found in the record of the experiments, where he filled teeth and tested the filling materials on the carious material itself. At his (Mr. Cunningham's) suggestion Dr. Miller filled a tooth with gutta-percha and sulphate of copper mixed up together, and he got much more telling results than were produced from any of the copper amalgams. There was an enormous difference between the slight effect that was obtained with a gold cylinder on a plate culture, and that obtained by a piece of amalgam or a piece of carious dentine that had been under an old copper amalgam. With regard to the bouillon culture of Mr. Goadby, Dr. Miller referred to the fact that bouillon was a material which was not a very satisfactory one for testing the antiseptic action of copper amalgam. But however they might differ, he was sure the members had great regard and high respect for the admirable investigations that had been given them that evening, and he was sure they were indebted very much to both the authors for the addition of scientific data they had put before the members.

Mr. HUMBY said that Mr. Cunningham had not been experimenting with copper amalgam at all, but with an alloy of two amalgams mixed together in the one cavity. He

(Mr. Humby) was not condemning copper amalgam in conjunction with other things.

Mr. ROBBINS said he was one who thought that every material they had in their surgery had a use, and although copper amalgam played a very much smaller part with him than it had done formerly, he thought there were a few positions in which it might still be used. With reference to Mr. Cunningham's remarks he could not help thinking that Mr. Baldwin's method of lining cavities with oxyphosphate had an advantage over lining cavities with copper amalgam. The one great feature that had been emphasized in the discussion in favour of copper amalgam still stood, viz., that they very seldom noted shrinkage. He could not help thinking that the papers just read brought them up to date, and that there was a hopeful future not only for copper amalgam having proper attention given to it, but for all amalgam fillings, owing to the scientific observation that was going on. He did not think there ever was a time when amalgam was treated so thoroughly as in the present day, and yet in our schools how little there was of direct teaching in this matter, either in the lectures on Metallurgy or in clinical demonstrations. There were three eminent men, whose names were mentioned by Mr. Badcock in his able paper, Mr. Rogers, Dr. Perry and Dr. Derby—names that are associated with all that is sound and practical, on this or the other side of the Atlantic—differing upon the question of copper amalgam, and if that were so, clinical observation was not enough. They wanted scientists to come in, and it was very gratifying to find that they had younger men in their midst with the capabilities of going into the matter, and he only hoped that the experiments which had been begun would be extended. There were still places, he thought, where copper amalgams could be used—for temporary teeth, for old, broken down shells of teeth that nothing else could be put in, or for very soft first permanent molars.

Mr. CUNNINGHAM said that with regard to the American aspect of the question he would ask Mr. Badcock not to lay too much stress upon the American opinions of copper amalgam. He did not think the American evidence was really strong on that subject. He still preferred the opinion of Claude Rogers, who was a great operator and a saver of teeth, and he still retained the use of copper amalgam in his practice. He regarded Dr. Perry and others as high authorities, but not on the question of copper amalgams.

Mr. J. H. BADCOCK, in reply, said that he agreed with Mr. Hunt's remarks as to the wasting of brilliant fillings, but he did not think that black fillings meant success. A black filling very often meant exactly the reverse. In the dirtiest mouths copper amalgam had an intensely black surface, like a layer of soot, which came off when touched, leaving a brilliant surface beneath it. This was where a great deal of sulphuretted hydrogen was formed. Where there was less the colour was not so intense a black, often a chocolate brown, and was not so easily removed. Fillings of this latter type lasted best, but like all copper fillings, were unreliable, especially under the gum. Mr. Henry had spoken of mixing submarine with copper amalgam. He had tried that, but had not found it a success. In small quantities it retarded wasting but did not cure it, and if more were added change of shape, the fault of alloys, occurred. Mr. Cunningham seemed very much surprised to find himself in accord with him (Mr. Badcock) and he was very glad indeed that that was the case, because he felt that Mr. Cunningham's experience and opinion were very great supports. Mr. Cunningham seemed to have forgotten that in the paper he stated that the only justifiable way of using copper amalgam was to use it coated, and that seemed the method Mr. Cunningham adopted. Copper amalgam was extremely good when coated. He (Mr. Badcock) used it himself in temporary teeth and very much in cavities which he could not get dry. There he put in a layer of copper amalgam and covered it with a layer of some alloy to protect its surface, and in that way produced a very good filling: but where he could use an oxyphosphate in preference to the copper he did so, because he believed its qualities were better as a tooth saver. Mr. Cunningham had reproached him with omitting the name of Dr. Foster Flagg, but it would be remembered that Flagg's book was more than ten years old, and he had expressly confined himself to the last ten years. He quite admitted that if a filling were germicidal it was perhaps an advantage. He did not know if copper amalgam were germicidal or not, the evidence was contradictory, but he advised no one to lay any stress on its germicidal property. With regard to the cultures of Dr. Miller, he was not so fortunate as Mr. Cunningham to see the original culture plates. He saw pictures of them in the *Dental Cosmos*, and if Mr. Cunningham would look at those he would see the zones round the soft gold were precisely similar to the zone round the copper. He (Mr. Badcock) did

not think it would be quite right to neglect American opinion because one did not happen to agree with it. He had tried to collect all the evidence he could during a certain period. What Mr. Robbins said about using copper amalgam for frail teeth and so on, he could hardly agree with. It seemed to him that if they had a very weak, frail shell of a tooth, they got a stronger filling if they filled it with oxyphosphate coated with an alloy.

Mr. GOADBY also replied. With regard to Mr. Cunningham's remarks, tubes of bouillon were generally used in his laboratory for testing the effectiveness of an antiseptic, and many of those tubes in which discolouration had occurred were tubes with saliva taken as nearly as possible under the normal conditions of the mouth. On the gelatin and agar cultures he had found the green stain, and on making subcultures from that green stain round the filling he had got a distinct growth on the bouillon. As to the copper sulphate, at the close of the last meeting he had a little talk with Mr. Cunningham, after Mr. Baldwin's paper, and Mr. Cunningham assured him that he liked to see the roots turn nice and green on the application of his copper sulphate. Anyone reading Dr. Miller's paper would naturally infer from the remarks that he used his copper sulphate because he got a green discolouration from the tooth. He thought it had been the general idea of the profession that a copper sulphate had been formed from the filling. With regard to the remarks of Mr. Humby and Mr. Cunningham as to the value of clinical and experimental work, he thought the two ought to go hand in hand much more than they did, and he did not think it was fair to put one in front of the other.

The thanks of the meeting were given to Mr. Badcock and Mr. Goadby for their papers, and also to Mr. Robbins for his casual communication, and the Society adjourned to April 5.

STUDENTS' SOCIETY, NATIONAL DENTAL HOSPITAL.

An extraordinary meeting of this Society was held on Monday, February 8th, 1897. The Vice-President, Mr. T. G. Read in the chair.

It was proposed by Mr. Tattersall and seconded by Mr. Tilly that the day of meeting be changed from the 1st Friday

in the month to the second Monday. This was supported by Mr. Greetham, on the condition that a month's notice in writing be given to all members, and was carried unanimously.

It was then proposed by Mr. Greetham and seconded by Mr. Nicholls that Dr. Cunningham take the chair.

The President, Dr. Cunningham having taken the chair, the minutes of the last meeting were read and confirmed.

The President having called for Casual Communications.

Mr. Messenger showed by models and photographs a case of cleft palate and harelip in a child $5\frac{1}{2}$ years of age, in which the inter-maxillary bone had been removed and in which the mandible projected half an inch beyond the maxilla.

Mr. Wing showed a case of a boy of 12 years, in which the upper incisors had geminated with two supernumerary laterals. The true laterals had been extracted.

Mr. Edwards having shown by models, a case of good articulation with the exception of the 1st lower molars right and left, which he said were under treatment, and having asked for advice as to helping the articulation, a discussion followed in which the President and Messrs. T. G. Read, Nicholls, and Dowling took part.

The President then gave his introductory address.

At the close of the address a hearty vote of thanks was proposed by Mr. Greetham, and carried unanimously, to Dr. Cunningham, and to those gentlemen who had brought forward Casual Communications, after which the meeting terminated.

ODONTO-CHIRURGICAL SOCIETY OF SCOTLAND.

The annual general meeting of the Odonto-Chirurgical Society of Scotland was held in the Society's rooms at 31, Chambers Street, Edinburgh. Mr. J. Stewart, the president, in the chair.

The business was of a routine nature, and the following office-bearers were appointed for the ensuing year :—

President, Mr. J. S. Amoores ; vice-presidents, Mr. Rees Price and Mr. Graham Munro ; librarian, Mr. D. R. Campbell ; treasurer, Dr. Guy : and secretaries, Mr. H. B. Ezard and Dr. Turnbull.

The meeting afterwards became conjoint with the Scottish branch of the British Dental Association, when a discussion took place on Dr. Guy's paper on the "Future of Dental Education," which was delivered in Edinburgh some time ago.

The thirty-second annual dinner of the members of the Society took place in the evening in the Balmoral Hotel. Mr. J. Leslie Fraser, of Inverness occupied the chair, and Mr. C. F. Sutcliffe, South Shields, officiated as croupier. The Chairman, in proposing the toast of "The Dental Diploma," said that he did not think there was enough stress put on the clinical instruction—on the purely practical branch of dental surgery. Men were given the diploma, as thoroughly qualified, when they were very far from being qualified, and the reason for that was that the practical part of the work had been overlooked. He thought a great deal more ought to be done, before a dental diploma could be attained, in training students in operative dental surgery.

The toast of "The Odonto-Chirurgical and Sister Societies" was proposed by Emeritus-Professor Struthers, who hoped dentists would never allow lecturing to take the place in their education of practical work. He had no faith either in written examinations, and he seldom rejected a student on his written examination unless he was deplorably and unmistakably bad.

Mr. Amoores, the President of the Society, replied, and other toasts followed.

In preparing a tooth for the reception of a porcelain crown (Logan or Richmond), before excising the natural crown, if you will take a piece of French rubber tubing, about one-eighth inch wide and a little smaller than the tooth to be crowned, carefully work it up on the neck of the tooth and as close to the gum as you can get without causing too much pain, allowing the patient to wear it forty-eight hours, you can then face the root off underneath the gum without laceration, hæmorrhage or discomfort to your patient, which I consider quite an advantage in doing a nice piece of crown work. If natural crown is broken off, build down with cement sufficient to give room to adjust rubber tube.

Dominion Dental Journal.

Dental News.

DEATH AFTER GAS AND ETHER.

Mr. Martin held an inquest at the Windsor Royal Infirmary, respecting the death of Julia Goth, 29, who had been employed as a nurse in that Institution. Mr. A. V. Evans, the house surgeon's *locum tenens*, said that on the deceased telling him her teeth were bad, he advised her to have them painlessly extracted. Witness, Mr. Veysey, Mr. Dainty's assistant, the matron, and a nurse were present during the operation, which took place on Thursday afternoon. He administered the gas about three o'clock and ether afterwards, and then Mr. Veyser removed three teeth. The deceased changed colour, and when witness had felt her pulse she was placed upon the floor. He administered restoratives and efforts were made to induce respiration without effect till six o'clock in the evening. Mr. Gooch, a Windsor surgeon, assisted. Witness thought she died in about three minutes after the first collapse. He had previously examined her in order to ascertain whether she was in a proper condition to undergo the operation. He had had considerable experience at St. George's Hospital in administering anæsthetics for all purposes, but had never met with a similar case. Ether, of which he had given a very small quantity—a drachm and a half—counteracted the effects of the gas and was a safeguard. He was quite sure he had not given an overdose.

Dr. Casey, who had made a *post mortem* examination of the remains, testified that death had resulted from failure of the heart, which had probably been paralysed by the gas.

The Coroner observed that no blame could be attached to anyone. The Jury returned a verdict in accordance with the medical evidence.

DEATH AFTER CHLOROFORM AT WORCESTER INFIRMARY.

An inquest was held by the Worcester City Coroner (Mr. W. B. Hulme), as to the death of Emma Stevens, aged 23, of North Piddle, near Worcester, who was taken to the Infirmary about ten days ago, suffering from enlarged glands

in the neck, due to bad teeth. On Monday chloroform was administered to her, and a slight operation was performed. Afterwards six teeth were extracted without the use of chloroform. She recovered from the effects of the chloroform, but died before she could be removed from the Lecture Theatre.

BRISTOL COUNTY COURT.

BRIGGS V. HART.—This was an action brought by Henry Fielding Briggs, dentist, White Ladies Road, to recover £7 7s. from Louisa Hart, a domestic servant employed at Sneyd Park, for material supplied and services rendered. Mr. J. E. Richardson represented the plaintiff. The case for the plaintiff was that in January last the defendant called upon him, and asked him to see to her teeth. She expressed a preference for gold fillings, but after she had been told of their expense, it was arranged that she should have a Platinum and silver alloy plate and platinum fillings for eleven teeth at the price of £7 7s. The defendant was asked if she could afford to pay that amount, and she replied that she could. The plaintiff having supplied the material and rendered the necessary services, he received a visit from the defendant's father, who complained that the plate did not fit the girl's mouth, and that the charges were high. The defence was that the plate did not fit the girl's mouth, and was of no use to her, and that for the £7 7s. the plaintiff was to "put her mouth in proper order."

His Honour said the plates supplied by dentists were often uncomfortable when first used.

Judgment was given for the plaintiff for £5 5s. to be paid in instalments—5s. each month.

ACTION AT CARDIFF COUNTY COURT.

The workings of the American Dentist Company were investigated by Judge Owen [at Cardiff County-court on March 31st.

There were two cases in which the partners were interested.

The first was a claim of £33 4s. 6d., brought against Dr. Daley by Mr. G. R. Dauntton, of the Queen's Hotel, Mews, Clifton.

The matter had previously been before the High Court, and judgment for the amount was then obtained.

Mr. Lewis Morgan now appeared for the plaintiff, and asked Dr. Daley how many places of business he had.

Dr. Daley : Our principal business place is at Queen-street, Cardiff, and we have branches at Merthyr, Aberdare, and Pontypridd.

Have you a branch at Bristol?—No ; we had, but we gave it up.

When?—About six months ago.

What rent do you pay for your premises at Cardiff?—£80 a year, but I am not alone.

Have you got it on a lease?—Yes.

What rent do you pay for your branches?—5s. per day when we attend at them.

What are your takings?—Between £20 and £30 per week.

The Judge : Well, why don't you pay your debts?—I only get a fourth of the profits.

Who is the other man?—Mr. Fuller.

Is he the senior partner?—Yes.

Under what name do you trade?—The American Dentist Company.

How was the business started?—We commenced in London and then started at Bristol.

Are you an American?—No, but I am a qualified American dentist.

How came it that you only got a fourth of the profits?—Because I did not have the capital.

The Judge : You do not want much capital for a dentist—just one or two things.

Dr. Daley : We want many things.

The Judge : How much capital did Fuller put into the business?—I cannot say exactly.

The Judge : £25?—More than that.

The Judge : £26?—More than that—£40 or £50.

The Judge : As much as that?

Mr. Morgan : And because your partner introduced £40 or £50 you allow him three fourths of the profits?—There have been expenses and other money for which my partner has been responsible.

The claim is for keeping a horse in Bristol?—Yes, I was then in a position to pay for it.

It was a luxury?—Yes.

The Judge : You must pay for luxuries.

In the other case, Mr. George David represented the plaintiffs (Messrs. Thomas and Co., contractors), and the claim (also remitted from the High Court) was for £39 6s 9d., the cost of fitting up the Queen-street premises. Both partners had been served, but Mr. Stansfield Fuller did not appear.

Mr. David questioned Dr. Daley, and elicited the information that he was not the junior partner on January 27 last.

For the defendants, Mr. W. B. Francis, solicitor, made an offer of £10 per month.

The Judge : First case, 21 days, suspended seven. Second case, 21 days, suspended 28, against both defendants. I allow a solicitor in each case. *The Western Mail.*

DEVON AND EXETER DENTAL HOSPITAL.

Mr. R. Ley (president) presided at the annual meeting at Exeter. The Medical Sub-committee's report showed that during the past year 5,584 cases had received attention, an increase on the previous year of 370, making a total of 86,007 since the opening of the institution. The receipts for the past year amounted to £166, and the payments £147, plus £3 18s. deficit on the 1895 account, which left a credit balance of £15. The reserve fund had been increased to £280.

The committee tendered their best thanks to the president who had again consented to be nominated for re-election. The two retiring members of the committee of management were Admiral White, C.B., and Major-General Saxon. These gentlemen, together with the hon. treasurer (Mr. J. M. Ackland), were nominated for re-election with best thanks for their past services.

The committee thanked the staff for their kind attention to the patients, and desired to acknowledge the services rendered by the hon. secretary (Mr. Yeo).

The chairman, in moving the adoption of the report, said the Dental Hospital was at last steering out of troubled waters and becoming an even more useful institution than in the past.

The report was unanimously adopted.

TO AN INCISOR ON HIS LEAVING HOME.

How sad man's lot, whose happiness depends
On faithless kindred, and falsehearted friends!

When, each in turn, he finds them out,
That one be true he well may doubt,
As I have cause to know:

O treach'rous tooth, so fair without,
A hollow friend wast thou.

Through thick and thin for thirty years or more
I'd stuck to thee as no man stuck before;

No power can now our bond renew:
A cruel break was thine adieu;

Thou mightest well have stay'd,
At least to see me safely through
That bread and marmalade.

Thyself (no fingers having) thou didst snap,
Nor cared for my convenience a rap.

Thy predecessor was displaced
To make thee room, deposed in haste,
Yet this thy love can do!

Thy post of honour is disgraced,
My beauty spoil'd to view.

To leave me thus a laughing-stock to be!

I call thy conduct mean to a degree.

Have I not all thy wants supplied,
No tempting morsel e'er denied?

Thou wast my first concern
Of all thy kin; is suicide
Quite honest in return?

Thy neighbours gone no confidence betray'd;
They warning gave betimes, then slow decay'd.

With labour were they worn, and pain;
What work did'st ever thou sustain?

Yet when I need thee most,
Help, for those left now ask in vain,
Abandon'd is thy post.

And what example hast thou set the rest!
Like thee, indiff'rent to my state distress'd,

Might they in gen'ral strike combine;
How should I then break fast or dine,
Starved by degrees perhaps?

At best my food I must confine
To everlasting paps.

Yes, from the rear ranks though were some displaced,
 Thou art the first that has the front disgraced,
 Time's inroads baring to my foes :
 Yet oh, far worse than jeers from those,
 To hear Youth's passing toll'd,
 And have thee thus abrupt disclose
 To me I'm growing old !

AVERY LONGFELLOW.

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

To the Editor of the "British Journal of Dental Science."

Dear Sir,—In your issue of June 1, 1896, appeared a letter I thought necessary to send you, calling attention to the evils existing in the shape of the unregistered dentist, or quack, plying his nefarious trade, without let or hindrance, and to the public danger.

Since that letter appeared, many prosecutions have been instituted against that class of evil-doers. The results of the prosecutions both at Cardiff and Brighton, abundantly prove that these men are acting directly contrary to the spirit and meaning of the Act 1878, and are therefore amenable to the provisions provided therein.

But Cardiff and Brighton must not lay the flattering unction to their souls, that they alone possess these quacks. Birmingham has its share, probably more. I can, from personal knowledge, instance cases far more glaring than those in which the strong arm of the law,—invoked by the Brighton, and the South Wales and Monmouthshire Dental Associations,—has cut short their existence. In the face of these facts, one is tempted to wonder if similar action in this matter, is contemplated by the Midland Dental Association. There is almost an infinite field of action open to them, and if they have given this important subject the thought it warrants, and ever intend to act, it is full time they did so. Such a state of things as at present existing, is a keen reflection on such bodies as the various Dental Associations; and what has blossomed forth into an almost universal system of quackery, and roguery, should have been nipped in the bud, by the application of a law which existed years ago, even as it does to-day.

The Midland Dental Association have now an opportunity of performing an act of equal public, as well as personal benefit. They have an opportunity of making some amends for their past inscrutable, yet undeniable lethargy, by present action. If they ignore the moral obliga-

tions their very existence imposes upon them, the onus of blame must be theirs, that the profession, over whose welfare they should zealously guard, is insulted and depraved by the depredations of a class of men, whose existence is unlawful, and whose practices are a standing public danger.

Yours faithfully,

G. M.

Birmingham.

To the Editor of the "British Journal of Dental Science."

Dear Sir,—In your issue of Jan. 1st, there appears a 'paragraph upon the subject of "German Dentists in South Africa," which if allowed to go unchallenged may do mischief.

The writer of the letter in question, which by the way, is dated from London, has apparently not made himself acquainted with the facts, for on perusing the rules that guide the deliberations of the Medical Board, I find that all dental diplomas registrable in the Colony, "shall be required to cover a three years' curriculum," hence it appears that German dentists would not be indiscriminately admitted, and it is in this connection that mischief might be done.

In passing it may be well to add that on perusing the Colonial Act, I do not find that the Board is endowed with any power to examine applicants for license to practice dentistry (vide your opening sentence), also I am informed that your statement as to the Government issuing an order for the granting of a license to a German Dentist is not in accordance with the facts.

Yours truly,

DENS SAPIENTIÆ.

Cape Colony, March 7th, 1897.

WRITING of crown and bridge work in the *Dental Review*, Dr. T. E. Weeks says that while not wishing to be understood as disparaging the necessity of careful preparation of teeth and roots which are to carry crowns, he wishes to emphasize the fact that there are other points of equal importance. His observation has convinced him that only a small part of the irritation and inflammation of the soft tissues about the teeth bearing crowns is caused by bands which do not touch the teeth at every point of their circumference at the gingival margin. Such irritation may come from (1) the edges of the band being rough or improperly bevelled, (2) the band being forced so far beneath the free margin of the gums as to encroach upon the tissues at some point, (3) improper occlusion, or (4) improper contour and contact of the proximate surfaces.

Mr. C. F. W. Boedecker, dentist, of New York, has been summoned to Berlin to render professional service to a member of the Kaiser's family. He says he will accept the call, but is not willing to take the appointment offered him of resident dental surgeon to the Imperial family.

London American.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester during the month of MARCH, 1897.

Number of Patients attended	1115
Number of Extractions	712
Number of Extractions under Anæsthetics	139
Gold Stoppings	339
Other Stoppings	254
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	255
Gold and Porcelain Crowns	33
Inlays	7
Total	2154

J. STEPHENSON, *House Dental Surgeon.*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
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OBSERVATIONS ON A REPORTED DEATH UNDER NITROUS OXIDE GAS AND ETHER.

By DUDLEY WILMOT BUXTON, M.D., B.S. Lond.,
Member of the College of Physicians, Anæsthetist at University College Hospital, and the Dental Hospital, London.

The case upon which it is proposed to make some remarks is reported in the daily press, but not very fully in the professional journals. It is therefore not impossible that some of the facts as here stated are capable of being explained and so modified as to bear an interpretation other than the one now proposed, while other facts germane to the case may be omitted.

The unfortunate patient was a nurse named Julia Gath, aged 29, she was in excellent health at the time of the operation, and the autopsy proved that all her organs were sound. At the time of her death Nurse Gath was at work in the Windsor Infirmary; she suffered from facial neuralgia arising from decayed teeth, and to relieve this the honorary dental surgeon Mr. Dainty, L.D.S. was asked to operate. On the day appointed, March 25th, Mr. Veysey, described as assistant to Mr. Dainty, attended to remove six teeth. Mr. Arthur Vernon Evans, M.R.C.S., L.R.C.P., a former resident house surgeon and house physician at a London hospital, who was acting as *locum tenens* for the resident

medical officer at the Infirmary undertook at the request of Nurse Gath, to give her the anæsthetic. He selected nitrous oxide gas with ether. The matron warned the patient to abstain from dinner, and the autopsy showed that as a matter of fact the stomach was quite empty. According to the report of Mr. Evans' evidence, "He prepared the deceased for the operation. She had previously asked for the gas to be administered. There were present himself, Mr. Dainty's assistant, the matron and a nurse. Witness administered the gas. This was at three o'clock, and he administered afterwards about a drachm and a half of ether, then, when she was under the ether, he allowed Mr. Dainty's assistant to take out the teeth; he extracted three. The deceased suddenly changed colour, witness immediately felt her pulse, and removed her from the chair to the floor. He commenced artificial respiration, injected nitrate of strychnine hypodermically, rubbed her gums with brandy, gave her nitrite of amyl, and also an inhalation of ammonia." Artificial respiration was continued until six o'clock. The evidence about the duration of the administration is a little hard to understand if it is to be taken quite literally. A juror asked "How long was she under gas? Mr. Veysey: Only a few minutes (six). Do you mean gas or ether, or both? The Coroner: First of all, gas. The doctor (Mr. Evans) says he administered first of all gas, followed by ether, how long would that be?—A patient is under gas for operation until the face-piece is removed; after that it was only a matter of half a minute that the operation took. The whole thing could not have been more than three or four minutes." Mr. Evans stated, "He thought the deceased died within about three minutes after the collapse."

The amount of ether used was stated to be one drachm and a half. The evidence as it is reported brings out some curious views as regards the alleged behaviour of nitrous oxide gas.

The post-mortem appearance of the heart and lungs was as

follows:—"the blood was a remarkably dark fluid, the heart was flaccid and empty: the lungs were not engorged with blood, and these appearances went to prove that death resulted from failure of the heart." The medical man who made the necropsy in reply to a question from the Coroner, said, "I think the gas was probably the cause (of failure of the heart's action); that it paralysed the heart."

Mr. Dickson, one of the anæsthetists at St. George's Hospital, giving expert evidence in answer to the question, "Is that (failure of the heart's action) caused by the gas; can you form an opinion?" said "I think the heart's failure was caused by that, I think it would be the probable cause, but it would be very difficult to say." In the evidence it was suggested more than once that the tendency of nitrous oxide gas was to produce syncope, and that the ether was given to counteract this. But Mr. Dickson apparently felt this statement was not justified, for when asked about it he stated that the ether was given to prolong the period of anæsthesia. The dentist's assistant stated it was unusual to give ether in succession to gas in private practice, but usual in hospitals and infirmaries. He also confessed he had no knowledge of the physiological action of ether. It was suggested that ether was not given in private practice, because it necessitated the presence of a medical man to administer it. Although this is a side issue, it is not an unimportant one. If, as it is alleged by the evidence, nitrous oxide gas produces, or tends to produce cardiac syncope, while ether stimulates the heart's action, and so is less liable to bring about heart failure, is it consistent for a medical man whose training presumably makes him familiar with all forms of anæsthetics, to be called in when ether has to be given, but not in cases in which nitrous oxide is employed?

To return to the present case. Death seems to have resulted from heart failure, and as the patient had just taken an

anæsthetic, the fatality will always be mentally associated with that fact. Whether the death was *post sed non propter hoc*, cannot with certainty be determined, unless other evidence transpires than that upon which comment has been made. There are, however, several very important points about the case which deserve close scrutiny. In the first place the patient was healthy, not unacquainted with the mysteries of anæsthesia, and not spoken of as either being nervous about, or in dread of the operation. She was, however, fasting. The operation took place at 3 p.m. or after; the stomach was quite empty; we are not told if any food had been taken since breakfast, and if, as is a common occurrence with women, a very light breakfast was partaken of, Nurse Gath had suffered a very prolonged fast. She was seated in a chair. The anæsthetic given was nitrous oxide gas, followed by an extremely small quantity of ether, so small indeed, that unless given in a Clover's combined apparatus, or some similar inhaler, a very few inhalations would have exhausted one and a half drachms of ether.

The evidence revealed no symptoms of ether intoxication, so we may safely leave that anæsthetic out of the question as far as the fatality is concerned. But what is not quite simple is the question of the duration of the induction period of anæsthesia. The "whole thing," by which it is presumed Mr. Veysey meant the time from the commencement of inhaling to the moment of collapse, occupied, he thought, three or four minutes. He allowed half a minute for the actual operation, leaving two and a half to three and a half for the induction of anæsthesia. If this statement is to be taken literally, it must imply rebreathing of gas and ether, and a prolonged period of deprivation of oxygen. Such a condition however, would probably have led to cyanosis, and jactitation, and neither of these symptoms are mentioned, nor did any of the medical men definitely state that this prolonged period of induction was a feature of the case. Bearing upon

the question of the tendency that nitrous oxide gas might possess to produce syncope, the evidence given by Mr. Evans is noteworthy. The Coroner asked "Ether counteracts the effect of the gas with regard to the action of the heart, does it not?" Mr. Evans replied, "Yes."

Now there seems no doubt Nurse Gath died from cardiac syncope. This was not due to ether. Was it the result of nitrous oxide administration? The collapse took place *after* the facepiece was removed, and after three teeth had been extracted. It appears then that either some circumstances existed which prevented the gas escaping from the lungs, or the operation played a part at least as important in bringing about death as did the anæsthetic. No mention is made of any spasm or anatomical condition such as would interfere with expiration. In removing teeth from the lower jaw, it is by no means uncommon for the tongue to be forced back and bring about a turgid condition of that part and so to interfere considerably with proper performance of respiration.

In such instances, a severe strain is imposed upon the heart. Within the experience of the writer, two typical cases of this kind occurred at a dental hospital and in each case respiration ceased, the circulation was seriously impeded, and the patient appeared in imminent danger from syncope. Inversion was promptly performed, and an immediate recovery took place. In such cases, however, it is a mistake to accuse nitrous oxide gas. It has been shown by the writer and confirmed by subsequent workers that nitrous oxide gas stimulates the action of the heart and assists circulation. When, however, the deprivation of oxygen which usually exists when gas is given by the older methods, is unduly prolonged by extraneous circumstances, e.g., excessive dosage with the gas, ether given without clearing the lungs of gas, forcing back of the tongue during the operation, closing of the larynx by spasm set up by blood, fragments of tooth, etc., or even faulty posture

of the head, there is grave danger of syncope appearing, syncope, the direct result of impairment of equilibrium between the gases in the lungs, and in the circulation.

Nitrous oxide gas is safe only as far as it is given with due regard to the fact that no associated asphyxia must be permitted. In no case need asphyxial phenomena appear, and when they do, danger is at hand. Whether in this case such deprivation of oxygen existed, it is impossible to say. The far more likely assumption appears to be that the patient was vitally exhausted after a prolonged fast, that the extractions were so many stimulations of peripheral nerves, which reflected by the central nervous system produced vagal inhibition of the heart. Certainly, unless the gas had been most carelessly given, no paralysis of the heart as a result of nitrous oxide gas acting as such, could have occurred. And so far from giving the gas carelessly, Mr. Evans appears to have given it with great care, and to have even safeguarded his patient by adding the stimulant ether. Mr. Evans, as an experienced man, clearly recognised the responsibility of his office and carried out his duties with the utmost zeal and forethought. At least so the evidence seems to show.

Are we to class this case with those quoted in the evidence? we think not; certainly that of Lady Milne bears little or no comparison. That lady was 71, was very stout, unduly tightly compressed by stays and had her stomach distended by food. Possibly had Nurse Gath had a little food in her stomach, things would have been better for her. Lady Milne had extensive fatty disease of the heart. The other cases are not to be identified but all instances of death reported to have occurred under nitrous oxide gas, have been described and commented on by the present writer in a paper entitled, "On Nitrous Oxide Anæsthesia," and some of them are worthy of collation with the present case.

What have we to learn? Surely, first, that neither nitrous

oxide gas or ether are discredited by this sad occurrence. 2. That prolonged fasts are at least as dangerous as distended stomachs. 3. That it is not only the inhalation which constitutes the danger of any operation, but the collateral circumstances, the actual surgical procedure, (and here the experience and care of the operator become an important factor), the many possible accidents connected with that procedure. In no case must the possibility of simple or shock syncope occurring be forgotten. As to the best measures for resuscitation, views differ; the writer attaches more importance to forced respiration and total or semi-inversion in cases of threatened cardiac failure. Laborde's rhythmic traction upon the tongue, and Mass' rapid palpation of the heart, are also measures of established value.

HYPNOTISM.*

By Dr. JAMES MAUGHAN.

Mr. Chairman and Gentlemen,—In the course of my recent lectures on Anæsthetics, I had occasion to discuss the subject of Hypnotism, and as it proved of interest to the students, they asked me to repeat what I had to say then to the wider circle of the Students' Society.

Consequently the remarks I have the honour to make to you to-night are an amplified resumé of that lecture.

In introducing Hypnosis to you, I would describe it as an abnormal sleep characterised among other things by exalted suggestibility. As we proceed your own minds will frame a better definition than I am able to give you.

To the dwellers in ancient Rome, to the Greeks and Egyptians hypnotism was undoubtedly known and practised.

* Read at the Students' Society, National Dental Hospital.

History is full of the marvellous powers of the Fakirs of India, the musicians of Persia, the priests and priestesses of Egypt, the Sibylline prophetess, and the monastic recluses of the middle Ages. Their miracles were probably the result of hypnosis or an allied condition. Many strange cataleptic states are recorded, e.g., the Hesychasts of Mount Athos remaining motionless for days, the Taskodrugites each with a finger to his nose fixed in a definite pose, the Jogins hibernating at will, and the Dandins of India becoming fixed after saying "Om" 12,000 times over.

These are probably cases of auto-catalepsy. Even Socrates himself would stand for hours motionless and wordless.

Quacks and charlatans have for too long a time had the science and art of hypnotism entirely in their own hands, and for the purpose of filling their purses have organized public exhibitions, that on many occasions have cast a slur upon civilisation.

Certainly Braid, of Manchester, some fifty years ago studied the subject especially from the anæsthetic and sedative point of view. But his efforts did not meet with the support and the sympathy deserved. In 1829 a Frenchman, M. Cloquet, hypnotised a woman and then amputated her breast. Loysel, of Cherbourg, amputated a leg in 1844, while the patient was hypnotised. In all these cases there was no pain.

During the last 16 years a definite impulse has been given to Hypnotism by the fact that a careful study of its phenomena and effects has been made by men of unquestionable honesty and scientific ability.

Without further preface I will describe the hypnotic state. The consciousness is altered, the "ego" is different, the will power is to a great extent placed at the service of the operator, there is increased attention, with greatly increased suggestibility. But the moral sense is intact or exalted above the

normal, and a certain amount of will-power is retained to give expression to this fine quality.

The respirations are somewhat deeper, the heart beat and pulse can be quickened or slowed, the face made to flush and the lachrymal gland to secrete freely. The salivary glands are usually active and deglutition is frequent.

A postage stamp will vesicate if the patient be told it is a blister. On passing a needle into the flesh no blood follows as a rule, but if that needle were to open the femoral artery, hæmorrhage would undoubtedly occur, and the patient's life be endangered.

The sensory nerves can be rendered anæsthetic or hyperæsthetic at will. The motor nerves can convey messages which result in the most phenomenal output of muscular strength. In one man this muscle power can be evoked most readily, while in another a difficult mental calculation is speedily worked out.

Hypnotism may be regarded indeed, as a means of rousing into active prominence latent mental faculties, and at the same time of arresting most of the normally-used faculties. The origin of these latent faculties probably lies in some ancestor near or remote.

This leads us up to the questions : Cannot teeth be extracted painlessly by suggesting anæsthesia ; cannot severe neuralgia defying dentist and doctor alike, be cured by suggesting freedom from pain ? cannot a bad habit such as morphine-mania be eradicated by rousing into active prominence the dormant faculty that would restrain such a vice.

The answer to these questions is yes, and they have all been done.

The best method of inducing the hypnotic state is the verbal suggestion of sleep. The *modus operandi* is as follows : The patient should if possible see others hypnotised first, then being seated in a comfortable chair, he is asked to

fix his eyes on, say, the pattern of the carpet, not thinking of anything in the meanwhile. After three minutes or so suggestions may be made to him such as "You are getting tired, your sight is growing dim, your eyelids seem heavy, my voice seems a far way off, you are getting more sleepy, you can't keep awake, you can't keep your eyes open, they must shut." At this juncture the closing of the eyes may be assisted by a gentle movement on the part of the operator. The hypnotic state is now induced and he is in a condition of ready obedience. But he must hear and understand what is required of him. "Keep quite still, I am going to touch your gums, but you shall have no pain," would be a convenient suggestion if you intend extracting some teeth.

With your permission I introduce an experience of M. Roth. The case was one of dislocation of the shoulder joint. A mask was put over the man's face, and the doctor said, "You will fall into a quiet sleep under the chloroform, and will feel no pain whatever." After a few whiffs the patient's breathing was deep and regular, and he was found to be sleeping quietly and soundly. M. Roth then attempted to reduce the dislocation, but failed, owing to the muscular resistance. Turning to those around he said "Unfortunately reduction can only be effected with relaxed muscles." To his astonishment and surprise the muscles became flabby at once, and the humerus was easily replaced. He then said, "Wake up." The patient awoke and said he had felt no pain whatever.

In 1889, Radier reported a case lasting half an hour after the effects of nitrous oxide had passed off. Both respiration and pulse were normal. He considered it a case of pure hypnosis provoked by the application of the face-piece.

To procure the disappearance of a neuralgia, or a pernicious habit, requires the repetition of a suggestion over and over again for fifteen or twenty minutes. This should be followed

by a continuation of the sleep for about half an hour, when he may be aroused by the simple command "Wake up." It may be necessary to repeat the trances, say, twice a week, before a complete cure is obtained. In sleeplessness, epilepsy, chorea, and stammering, in visceral troubles such as vomiting, where no organic lesion exists, Hypnotism has afforded great relief, and in most of the cases completely cured them. Some of the reputed cures at Lourdes must be classed as cures by suggestion, *i.e.* hypnotism. It is not possible to make an organised growth such as a cancer disappear, nor to change an ordinary man into a Paganini just by putting him into this trance, nor to transform an out-and-out rogue into an archbishop. Operators usually content themselves by making one suggestion at each séance, and so gradually evolving the result aimed at.

As to the dangers of hypnotism they exist mainly in the minds of the inexperienced and ignorant. It is a practice that is obviously liable to abuse, and the Belgian law has very properly made it penal for any one to perform it unless he be a qualified medical man. In this country it would be well to make the suggestion to the patient that "I and I only shall have power to hypnotise you." A third person, preferably a relative of the patient's, should be in the room during a séance. Hypnosis should not be induced too frequently, especially in unsuitable cases.

Those subjects who are not easily hypnotised are probably weak mentally. They are either unable to fix the attention sufficiently, or else they resist, consciously or unconsciously, the tendency to sleep. And so it is that hysterical and neurasthenic patients are difficult subjects, while with idiots it is utterly impossible to induce hypnosis.

During the trance the effect of music is curious. The pulse is quickened and the patient shows signs of pleasure, but should the chords change from a major to a minor key,

he becomes collapsed. This incident only occurs when the subject can hear, and moreover has some taste for music.

If a suggestion be made during the sleep that the patient shall remember all that transpires, he will be able to describe every event when he awakens. Here is a striking contrast between the hypnotic and normal sleep, for in the latter all impressions of dreams, etc., vanish as consciousness becomes fully established.

In the education of children the nipping of a moral fault in the bud, may save him from a defective, depraved, or criminal manhood. It is a matter of common knowledge that the child possesses not only the faculty for mischief but also the power to restrain such a faculty. This power confers a priceless boon on its owner if it can only be developed. It probably has taken centuries to evolve this characteristic in the human race. Hypnotism enables the physician to arouse this inhibitory influence if it lies dormant and undeveloped, and so the boy, profiting by this new energy, fits himself mentally and morally for the higher responsibilities of adult life. As a matter of fact, children are being educated daily by suggestion, how much more effective is that education which is conveyed to the sensitive plate of a hypnotised mind!

Lastly can crimes be enacted by a hypnotised subject? This question has afforded inexhaustible material to the novelist and the writer of sensational stories, and of course gross exaggeration and untruth have been the result. The best answer is the following case:—

A girl was hypnotised and then told to murder someone notwithstanding which, she remained quite still. The operator awoke her and then hypnotised her again. In this second trance he asked her why did she not commit the murder as she was told to do. Her reply was, "I don't want to commit a crime even in jest." This is a practical object lesson, shewing the power of judgment, and the loftiness of the moral

sense. In fact the soil on which the suggestion falls must ever be considered as the most vital part of any action done in the hypnotic state.

Hypnosis does not produce a stunted organism or a helpless tool but a being who is capable of most wonderful power over the functions of his body, and over his moral conduct. The induction of the hypnotic state and the subsequent suggestions, present abundant proof of their value in therapeutics. The only difficulty seems to be to select suitable cases for treatment. The position of hypnotism may be stated thus:—

(1) It should be tried after the usual remedies have failed, and any intelligent person can induce it.

(2) It is indicated in those diseases where no structural lesion obtains, e.g. Insomnia, Fear, Doubt, Pain, Drug-habits, Hysteria, Epilepsy, Chorea, Stammering and Writer's cramp, also Vomiting and Diarrhoea of nervous origin.

(3) It is also of proved usefulness in correcting irregularities in the mental and physiological processes during childhood, youth, and early adult life.

(4) It is available for producing anæsthesia for minor operations, e.g., dental extractions. It may be of use in cases of hæmophilia, not only to produce anæsthesia, but to suggest an absence of hæmorrhage after the operation.

(5) It is useless in the treatment of organised growths, such as cancer.

(6) In unsuitable cases it should not be persisted in, but abandoned at once.

(7) It should never be practised as an amusement, nor relegated to the untutored and unphysiological handling of a professed charlatan.

We can use this mode of treatment in only a limited number of cases, but when it is stripped of its mysticism, its exaggeration, and its fabrication, we must accord to it its true place, and that an important one, in the therapeutics of to-day.

STATISTICS FROM THE DENTISTS' REGISTERS.

By A. F. A. HOWE, L.D.S.Eng.

The appended tabular statement has been compiled from each of the Dentists' Registers published since the passing of the Dentist' Act in 1878, and is brought up to date by the inclusion of the figures contained in the volume for 1897, recently issued.

It is necessary to point out that though each Register bears the date of the year of publication, the entries contained therein relate to the twelve months ending the previous December 31st, for example—the volume labelled 1897 has reference to entries for 1896 and previous years. This applies to all the Registers with the exception of the first one, the compilation of which was completed in the autumn of 1879. Consequently no Register appeared in 1880.

An examination of the accompanying statistical table brings to light results which cannot fail to be of the greatest interest to the dental profession, and therefore no apology is needed for setting out in some detail the result of a close scrutiny of the figures under their several headings.

Licentiates holding the "England" diploma show an unchecked increase from 336 in 1879 to 785 in 1897, no less than 73 being added last year.

The "Edinburgh" Licentiates also increased uninterruptedly but in smaller numbers, the actual figures being 11 in 1879 and 159 in 1897.

The "Glasgow" Licentiates are in an identically similar position, their numbers having improved from 5 in 1879 to 130 in 1897.

The "Ireland" Licentiates do not show to such advantage. They commenced in 1879 with 131 and in 1883 had rapidly

risen to 323, subsequently the numbers increased more steadily to 445 in 1892, since which year they have not added more than 9 to that total, and in 1897 are again down to 445.

The aggregate total of all Licentiates commenced with 483 in 1879, and in 1897 has risen to 1,519. This will be regarded as eminently satisfactory, especially by those "fathers" of the Act to whom belongs the chief honour of raising the practice of dentistry to the level of a learned and scientific profession.

The next section in the table deals with Non-Licentiates. They are officially divided into two classes :—

(a) With additional Surgical Qualifications.

(b) Without any additional Qualifications.

The former (a) comprises a small body of men (30 in 1897) whose names appear in the Medical Register.

The latter (b) are practitioners on their own declaration only, and form the largest number of any section on the Register. This class showed an aggregate total of 4806 in 1879 and has fallen to 3287 in 1897, one of the largest annual decreases—165—taking place in the year ending December 31st, 1896.

The sum total of all the names under the general heading of UNITED KINGDOM DENTISTS is shown to be 5289 in 1879 as against 4836 in 1897.

There only remains Division II. to speak of. Under this head all FOREIGN DENTISTS are classed. Only two Universities are quoted—Harvard and Michigan. The total number of foreign subjects registered as possessing one or other of those degrees has never exceeded the insignificant total of 27 (Harvard 11 and Michigan 16), and according to the 1897 Register the total is only 24. Reference to the last four Registers shows that no American dentist has been added since May 15th, 1893.

Synopsis shewing the Numbers and Qualifications of published up to the

Description of Qualification	1879	1881*	1882	1883	1884	1885
I.—UNITED KINGDOM DENTISTS.						
(A) Licentiates in Dental Surgery of the following Colleges :—						
(a) Royal Coll. of Surgeons, England	336	348	359	366	372	384
(b) Royal Coll. of Surgeons, Edinburgh	11	15	21	25	35	39
(c) Faculty of Physicians and Surgeons, Glasgow	5	25	40	45	46	47
(d) Royal Coll. of Surgeons, Ireland ...	131	177	278	323	348	367
Total Number of Licentiates in Dentistry	483	565	698	759	801	837
(B) Persons, on their own declaration, in bonâ fide practice of Dentistry ...						
(a) With additional Surgical qualifications			20	21	22	23
(b) Without any additional qualifications	4,806	4,693	4,623	4,472	4,468	4,395
Total number of the United Kingdom Dentists	5,289	5,263	5,341	5,252	5,291	5,255
II.—FOREIGN DENTISTS.						
Doctors of Dental Medicine of the University of Harvard	2	2	3	4	4	
Doctors of Dental Surgery of the University of Michigan		1	1	1	1	
Grand Totals	5,291	5,266	5,345	5,257	5,296	5,255

Persons Registered in all the Dentists' Registers
present year, 1897.

1886	1887	1888	1889	1890	1891	1892	1893	1894	1895	1896	1897
397	421	434	451	474	505	533	571	597	663	712	785
46	49	62	71	86	92	104	108	117	133	144	159
53	58	65	71	82	87	97	103	110	113	122	130
373	404	416	429	437	442	445	444	453	454	447	445
869	932	977	1,022	1,079	1,126	1,179	1,226	1,277	1,363	1,425	1,519
23	25	25	25	26	26	27	29	29	32	31	30
4,306	4,243	3,889	3,833	3,700	3,650	3,671	3,539	3,489	3,479	3,452	3,287
5,198	5,200	4,891	4,880	4,805	4,802	4,877	4,794	4,795	4,874	4,908	4,836
7	4	4	5	5	6	7	9	11	11	11	9
4	3	4	5	8	9	12	14	16	16	16	15
5,209	5,207	4,899	4,890	4,818	4,817	4,896	4,817	4,822	4,901	4,935	4,860

A. F. A. HOWE, L.D.S.Eng.

March, 1897.

The compiler trusts that the figures contained in the table will be found interesting to the profession and useful to the public. He desires to acknowledge his indebtedness to Mr. Arthur Read, L.D.S. Eng., who has rendered valuable assistance in verifying the statistics from the file of Registers kept at the office of the General Medical Council.

OBITUARY.

Dr. PARSONS SHAW.

Dr. S. Parsons Shaw died a few days ago, in his seventy-second year, at National City, Colorado. An American by birth, he came to this city forty years ago in order to practise as a dentist, and did much, by inventions and demonstrations, to improve the status of his profession. He was the founder of the Manchester Odontological Society, to whose *Transactions* he contributed many memoirs. He had seen in his youth some of the original dental operations made by Wells with the use of nitrous oxide as an anæsthetic. In 1868, with the help of Mr. John W. Dunkerly, his assistant—and later his partner and successor—he experimented with the gas on voluntary patients at the Clinical Hospital, demonstrated its value before a large number of medical men, and was the means of introducing it into this part of England. He was the originator, the consulting dental surgeon, and the first Warden of the Victoria Dental Hospital, in this city, which is affiliated to the Owens College Medical School. In April, 1891, Dr. Shaw retired from practice, and later in the same year returned to his native country.

Manchester City News.

A solution of hyposulphite of sodium in water will remove iodine spots from linen, cloth, skin, in fact from everything, almost instantly. The fresher the spots the quicker the action of the hyposulphite.

British Journal of Dental Science.

LONDON, MAY 1, 1897.

MISLEADING TITLES.

This is, as has been so often observed, an age of examinations. From the prelate to the plumber few escape, and in most professions the successful result of these examinations is embodied in a diploma, the possession of which is furthermore signified to the world in general by certain letters of the alphabet written after the name. That this is a convenient method of acquainting the public with the fact that a certain person is qualified by examination, is acknowledged by all. But on the other hand when persons who have passed no examination, or only a bogus one, exhibit an imposing array of letters after their name, that portion of the public which cannot, or which does not take the trouble, to distinguish between the true and the false, is as likely to be deceived as ever. A diploma is a writing which confers some power, privilege or honour, on the recipient, and to be of any value must be issued by some Body having such privilege or power to bestow. When its only value is a receipt for money paid, it is a danger to the public and should be suppressed.

The "diploma mill" is no modern invention. Over a hundred years ago the manufacture of learned theses for the doctor's degree in the German Universities was quite a thriving industry carried on by the University professors themselves, who sold to the candidates learned theses in excellent Latin suited to the length of their purse strings. A very inferior article could be had for four pistoles, while the affluent candidate who could afford to pay from twenty-four to thirty-six pistoles, could be supplied with a thesis of deep

erudition, couched in faultless Latin. Germany has long ago cleansed its Universities of any such reproach, and the chief delinquent of late years has been the United States of America. At present a "diploma mill" seems to be grinding pretty briskly at Milwaukee, with a "correspondence department" at Chicago. The enterprising "boss" works the system by sending out thousands of announcements to druggists and to unregistered practitioners, offering to sell a diploma. The authorities have made patient search, but cannot find either the originator or his "University." Only diplomas from accredited Colleges following a regular curriculum are recognised by most of the State Boards of Control, but even the possession of a fraudulent diploma may be the means of not only deceiving the public—a comparatively easy matter—but also of hoodwinking the officials who may exhibit carelessness, incapacity or an aptitude for receiving "palm oil." There is no doubt that the demand creates the supply, as the incompetent and unqualified feel they can practice with greater success and impunity with a purchased diploma than with none at all.

When the exhibition of a row of letters after a name simply pleases the owner and harms no one else, we can smile at human vanity and pass on. But when such practices are resorted to for the purpose of deceiving the public in matters of vital importance, for the sake of filling the imposter's pocket, it becomes a very different matter, as in the case of the "cancer specialist," mentioned in these pages some time ago. We laugh at the man who placed the letters M.C.E. after his name, when we find out that they stand for "Member of the Church of England," but it is a very different matter when a man attends suffering humanity on the strength of the letters M.B., which turn out to be nothing more than "Medical Botanist." An injurious method of supplying unqualified dentists with an imposing array of letters, has lately been mentioned by "Truth." It appears that in the minds of two or three (perhaps oversensitive) gentlemen, certain professions required elevating. This

elevation was not to come from within the body politic, but the lever was to be applied from without, and would no doubt have been a much more rapid elevator, if it had succeeded. The professions which seemed to be in such need of elevation were, the Auctioneers and Valuers, who were to be elevated by means of an "Institute of Auctioneers and Valuers;" the Civil and Mining Engineers, whose elevation was to be procured by a "British Academy of Civil and Mining Engineers," and Dentists who were to be elevated by means of the "Institute of Dentists of the United Kingdom." The method was simplicity itself, and consisted in paying certain fees, and being allowed among other privileges, that of using certain letters after the surname. The privilege of writing A.I.D.U.K. may be cheap at five guineas, but as "Truth," points out, no one has exclusive or patent rights in the English alphabet, and if anyone chooses, they may write the whole series from A to Z without paying anyone. When however, the title is an imitation of a well-known and honoured one, we think that the law as regards obtaining money under false pretences should be put in force.

THE TOMES' PRIZE.—At the Quarterly meeting of the council of the Royal College of Surgeons of England, a report was received from the John Tomes Prize Committee. The committee unanimously recommended to the council that the prize founded by the dental profession in honour of the late Sir John Tomes, F.R.S., be awarded to Mr. Charles Sissmore Tomes, F.R.S., member and licentiate in Dental Surgery of the Royal College of Surgeons of England, for his original and other scientific work in relation to dental surgery, dental anatomy, and histology; whereupon the council unanimously awarded Mr. Tomes the prize. The Profession will doubtless agree that the College has done the right thing, and that no more appropriate and fitting recipient could have been found for the first award.

MEDICATED HOT AIR.—Dr. Simmons, of Iowa, uses medicaments to impregnate his hot air syringe for divers purposes in preparatory treatment. For treating dead teeth he impregnates with cassia, etc., for obtunding sensitive dentine he uses menthol, essential oils, tannin and alcohol. He uses a special apparatus to give a continuous supply at the same temperature, and employs sharp instruments.

A NEW REMEDY.—Sir William MacCormac has received the following letter which we think amusing enough to reproduce from *St. Thomas's Hospital Gazette*:

To A Medical
gentleman at
Saint Tomies
Horspitel
West Minester
Bridge Road
London

Dir Sir

Just a few lines letting you now my bisness i was in this Horse pitle About 16 years ago and Recive greate attention i Sufered with Stone in the blader i had to go under a operation Mr. Mack comic was my Medicle gentleman a very tall built gentleman i am glad to say i am Still all Rite but my Hargument is i am more a Hurbless And under stand a little bit about the umon body i have got a Remedy Which as never been Expose to the public Only to Working man i New which had the same complaint as i had and that was a stone in the Blader i gave him some powders to last him About 3 Weeks he use one Every Morning in his tea and the same at tea time and the same with the Other man and i can safley say that thease powders did Resolve or Melt the stone in the Blader and i am happy to say that they are all Rite and as happy as a sand boy wonce they were dull and low spirited Now Sir i am asking you kindley a little bit advice about this i am Only a por man i am willing to do every

working man or gentleman every good but Not harm this
Remedy i do not think it ought to be covered Over and the
World not to know everythink about it it is worth somethink
it is Only hurbes but not Murkley i should like to have a
Ancer i can Not menchin Aney medical gentleman because
i do not now one onie Mr. Mack comic so I Now close

EXTRACTION OF THE FIRST PERMANENT MOLAR.—The late Mr. Salter used to recommend the extraction of the six year molar as a routine practice and the concensus of opinion in this country seems to be that in many cases it is an excellent thing to do. Dr. Norton Taylor, writing from Florida to the *British Medical Journal* says, however, that the practice does not find favour there, on the grounds that the tendency in the course of years would be to the still further contraction of the jaw. We do not think that this need be an argument against symmetrical extraction as the jaw cannot go on contracting indefinitely, and it would be far better to have twenty-eight or even twenty-four sound functional teeth, than thirty-two miserable and useless ones.

PATHOLOGY OF MERCURIAL STOMATITIS.—Dr. Lang comes to the following conclusions, according to the *British Medical Journal*. (1) That, in accounting for the origin of mercurial stomatitis, three factors must be considered, namely, the mercury, the local cause, and the bacteria. (2) That the ulcers develop chiefly on those parts of the mucous membrane which are exposed to pressure from the teeth, such as the edges and under surface of the tongue, the mucous membrane of the cheeks, and the edge of the gums. But he does not agree with the generally accepted view of Ricord and Fournier that these ulcers develop on the side of the mouth on which the patient lies in bed. (3) That the ulcers most frequently form in the neighbourhood of the incisor and canine teeth of the lower jaw. (4) That the saliva has

no influence whatever upon the origin of the stomatitis, the salivation being due simply to a reflex action starting from the mouth. The salivation never precedes the stomatitis, and is often entirely absent. (5) That the mercurial ulcers of the mouth are the result of a necrosis of the mucous membrane, which is brought about by the disturbance of the nutrition of the tissues, consequent upon the action of the mercury and by the pressure of the teeth on certain portions of the mucous membrane—pressure gangrene.

THOMAS FLETCHER, F.C.S.—Mr. Fletcher, whose furnaces are known and used the wide world over, is contributing a series of articles on gas fuel to *The Gas World*. This journal remarks, "Perhaps an early training in the mechanical operations of dentistry may have something to do with the development of the mechanical skill which he has so successfully devoted to the cause of gaseous fuel. That cause has been his favourite study for many years. He has worked at it in season and out of season, and in face of discouragements that would have quelled the ardour of any one less firmly convinced of its soundness." Our readers scarcely need reminding that in addition to his investigations on such an important matter as fuel, Mr. Fletcher has done good work for the Profession by his researches upon Amalgams and white stoppings, and has largely contributed to our Literature.

THE DENTIST'S DUTY.—Dr. Taft is of opinion that it is the duty of the dentist when attending any female patient who is "an expectant mother during the time of gestation and lactation" to approach her physician and give his views as to what ought to be done for the dental welfare of the mother and child. He grants there are difficulties in the way. Many physicians would resent the interference, and to approach the patient on the matter is a delicate task. He

thinks, however, if properly done, every intelligent woman will be thankful and grateful for any instructions. Dr. Taft thinks that the duty of the dentist does not cease with filling and extracting teeth, and that the questions of food and hygiene enter also into his province. He believes in the administration of bone-phosphate to the mother, and instances a case in which the third and fourth children of a family had good teeth as the result of this treatment, while the mother herself had poor teeth, as had also the two elder children who were born prior to the exhibition of the phosphate to the mother.

THE SENATOR AND DENTAL LEGISLATION.—A Dental Act was passed a number of years ago, in the State of Georgia, which did very well, but now wants amending. The Committee drafted the Bill, and to their surprise found that it met with great opposition in the Senate. The most strenuous opponent was a Dr. Stewart, a physician who remarked that "he could teach any young man with sense enough to come in out of the rain, all that is necessary to know about dentistry in two weeks. "There are only two jaws," the learned Senator remarked, "and thirty-two teeth, and any man with any common sense knows how to pull a tooth." Needless to say, the wrath of the dentists against Senator Stewart is at white heat. They suggest that the Doctor's graduation in medicine took no longer than the limit he allows to learn dentistry in.

ATTACHMENT OF LOGAN CROWN.—Having prepared the root and obtained proper fit of crown to root end and correct articulation, smear the end of the root with a varnish of rosin and chloroform, and place in position a gutta-percha washer. Cover the crown with oxid of zinc in powder, warm it and force it into the gutta-percha, trimming off all excess. This secures perfect adaptation of crown to the root end.

P. W. Onderdank, Southern Dental Association.

Reviews.

Dental Mechanics. Part III. Plate Work. By Harry Rose, L.D.S., Lecturer on Dental Mechanics at the National Dental College. London: J. P. Segg & Co., Regent Street, W.

"The author has endeavoured in this Section of his work to direct the Student and young practitioner to the most simple methods of working, and at the same time to produce perfectly satisfactory and artistic results; above all, it has been his aim not to perplex him with devices that are never practicable, nor sound in principle, and to avoid as much as possible using those standard specimens of dentistry, good, bad and indifferent, that seem to have been transmitted with one or two notable exceptions, into every book on Dental prosthesis within the memory of man."

The author has certainly succeeded in his endeavour. Mr. Rose is too well known in the profession to require any eulogy from us; every line bears the stamp of the thoroughly practical man. The author laments the decadence of Mechanical Dentistry, which he attributes to the advent of vulcanite and the short period of pupilage now existing. To remedy this he would have the pupil's term of apprenticeship systematised, so that he could cover the ground in three years, and get a fair insight into all the details of his work.

Mr. Rose contrasts plate with bridge work, and sums up his experience in the following words: "It is by no means uncommon for a gold or dental alloy plate to last efficient for ten, fifteen, or even twenty years, but I will venture to say that with bridge work it would be a rarity indeed, if it lasted a quarter of that time."

The work is a worthy companion to the two former volumes of the series Mr. Rose is writing. It gives everything worth knowing from refining and melting, down to crowns and pivots, but is nowhere prolix. The illustrations are good, the index copious, and the modest sum at which it is published places this useful work within the reach of all.

Abstracts of British & Foreign Journals.

PROFESSIONAL FEES.

By Dr. S. G. PERRY, New York.

The growth of what we will call the fee system has been a gradual evolution. It has undergone changes from time to time that have brought about readjustments in accordance with new conditions that have existed in the world until it has finally come to be generally acknowledged as a sort of code, unwritten it may be, yet resting securely upon the idea that a professional man is the best judge of the value of his own services, and containing the elastic quality that is essential to satisfy the demands of educated men. Knowledge makes men free. It gives them the freedom of authority. The world is being peopled with new kings. The man of science is a king who reigns supreme in a kingdom not subject to the disintegrating influences that are slowly, but surely, destined to sweep the old monarchies off the face of earth. All down the ages kings have boasted that they ruled by divine right. It has been the cheekiest claim that man has ever made since he emerged from his tadpole existence. The German emperor, William the First, voiced this claim on all convenient occasions, and yet he was but a child in the hands of his physicians; and his son Frederick, with all Europe at his feet, in his fatal illness sought help only from men of science. And his haughty and imperious son, the present Kaiser, knows there is one man in all the world he must obey,—his doctor!

The professional man, at last, is the one who rules by divine right,—a right based upon his intelligence, which alone invests him with divine authority. It gives him the right to impose the conditions under which he will extend his services to his fellow-men.

There is no standard by which to gauge the value of his knowledge or his skill. It must be done in the supreme court of his own intelligence. It cannot be measured, or weighed, nor can it be estimated by hours or days. It is subject to no conditions. Therefore, there must be individual liberty in imposing fees. It does not follow from this that men may exact unjust fees. This individual liberty is the

right only of those who possess knowledge in its largest sense, —knowledge which cultivates in them a sensitive conscience, enabling them to appreciate justice, and develops in them a tender heart, leading them to be helpful to their kind.

These qualities combined make the professional man a supreme judge in the highest sense, and one from which there can be no appeal. It does not effect the argument to contend that these conditions of mind and heart are not often found. If we are to search for a fundamental rule that shall be our unfailing guide, we can only find it is the highest qualities to which man has yet attained. It will be a rule that will not permit an unreasonable fee to be exacted by a man who has an exaggerated opinion of his own attainments and abilities, nor will it be one that will tolerate an inadequate one, imposed by a man who is lacking in self-respect, and whose tendency is to belittle himself and his profession. Nor will it for a moment tolerate the liberty of a man who takes advantage of his membership in a liberal profession to impose an unjust fee upon a confiding person who has no means of gauging him, except by the fact of his being a member of that liberal profession.

And the world to-day takes this view, and willingly sustains professional men in making their fees in accordance with their own ideas of what is fair and just. And this very fact imposes upon professional men a condition the most sacred of any in professional life. They must not only be competent to fulfil their duties to those who put themselves unreservedly in their hands, but they must be scrupulously careful not to abuse that confidence by securing unjust fees.

The adding up is like the task of a clerk in a country store. It distracts attention from the professional aspect of the case. It holds out temptations to those who are not conscientious. A man lacking in love for his work and anxious to make it profitable may linger over a minute filling in order to seem to deserve the minimum fee, and will hasten and slight the large filling in order to put in as many as possible in the shortest time. If there were only fillings of fairly uniform size to be done, there could be no fairer way than to charge for the operation. Each filling would be something tangible like a physician's visit or an office prescription.

But the work to be done in the mouths of most patients consists of a thousand and one little things that can hardly be described and enumerated, such as the preparation of

cavities, the placing of temporary fillings, removal of tartar, treatment of gums, treatment and removal of pulps, cleansing of roots, filling of minute fissures and pits that require but a few moments each, and the repairing of old fillings.

For the dentist payment by time is convenient, and for his patients it is easily understood. It has one very great advantage—almost the greatest of all—in the fact that the patient and operator start off with a distinct understanding. Those who wish to know to what extent they are incurring indebtedness, while their work is being done, can easily tell by keeping an account of the time. In this way there may be saved the surprise that often is felt at the presentation of an unexpectedly large bill, because most patients, without keeping, as far as they can, their own account, do not realize how much time has been given them. It is a system that, when rigidly enforced, insures promptness in keeping appointments on the part of both operator and patient, and in a great measure it removes that *bête noir* of a busy professional man's life, the habit many patients have of consuming time by indulging in endless and aimless talk. It gives to the operator a sense of freedom in the performance of his work. He has nothing to think of but how he can make his operations most perfect. Knowing that he will be paid, like a man who is pensioned, he has no concern except to do his work in the best manner.

It is due to him in return for a life spent in preparation for his work. It justifies him also in making a charge for appointments not kept. This system avoids the petty consideration and enumeration of particulars, and this, it seems to me, quite offsets the charge sometimes made by those who oppose it, on the ground that it is degrading for a professional man to put himself on a par with a day-labourer, whose work is estimated by the hour or the day. All men who work, either with their hands or their brains, are labourers, and it is no more degrading to estimate work by the hour than by the piece. The true difference is shown by the difference between the professional man's ten dollars per hour and the labouring man's one dollar and a half per day. The true professional man cannot be degraded by such childish reasoning as that.

If the time system is adopted, it seems to me that the only way in which it can well be applied is to have no fixed charge for an hour's service, but to have a wide range between the maximum and the minimum charge. For instance, in-

stead of making the charge ten dollars per hour, let it be from eight to twelve dollars.

After comparing and contrasting the two systems, we have found that each possesses marked advantages, and each embodies distinct disadvantages.

How, then, shall we decide between the two? This cannot be done in an arbitrary manner, as, in addition to the many difficulties we have found, the matter of individual temperament plays an important part, and there must be allowed great freedom in deciding a question that is so personal in its nature. On general principles it can be said that a man who can be trusted to perform professional work can be trusted to make the charge for it.

In my own practice, and in reply to enquiries as to my fees, I have always taken this ground. I never speak of fees when it can be avoided. I want to feel, and I want my patients to feel, that the work is of first importance, and that the fee, as a matter of course, will be what it should be.

If patients cannot come to me with this feeling of confidence, I prefer not to have them come to me at all. I have recognised the fact that there is an advantage in a fee card, since it enables the patient and operator to start off with a distinct understanding, and in the last twenty-five years I have prepared at least half a dozen, all based upon the idea of a combination of the two systems; but I never had but one printed, and that, many years ago, I withdrew after a few months' use. I have never had the courage since, when it came to the point, of having another printed. Although I believe it would be helpful from a business standpoint, I could not overcome the feeling that it was not quite the thing for a professional man to do.

As far as possible we must rise above the conditions indicated in the two systems, and, taking a wider view of professional life and its obligations, must exercise the liberty before spoken of as the supreme prerogative of educated men.

Assuming that we belong to the society of modern kings, let us take on the manners of the true king, and believing in ourselves and in our mission in the world, let us exercise the prerogative of those who labour and those who rule by divine right.

With this rule to guide us we shall become free, and rising above the details of our daily work, and putting aside this microscopic study of all its conditions, we shall make our charges and send our bills for professional services, and for those alone.

TECHNICAL EDUCATION.

By Dr. E. C. KIRK, Philadelphia.

It is the combined training of the muscles and of the brain which has been shown by experience to produce the most rapid and satisfactory, as well as most permanent results. It is a mistaken view to regard the manual training or technic idea as a means merely for hand training. It is and should be regarded as a method of brain culture, with the hand as one of the means to that end, having the great advantage, as related to dental education, of creating a high degree of manual skill during the time that it is efficiently cultivating the brain.

The principle involved in the technic system of instruction is broader and means more than mere cultivation of the brain and hand. It includes the use of all the perceptive faculties as means of brain cultivation. By the application of this principle not only may manual dexterity be achieved but all the powers of observation be trained to their highest capacity, and the reasoning faculty correspondingly developed.

The importance of the technic idea should not be lost sight of in the teaching of the theoretical branches of dentistry, as the applicability of it to these branches is fully as important as it is in the so-called practical departments. The laboratory system of instruction in chemistry, anatomy, physiology, pathology, bacteriology, etc., has on the continent of Europe, and to a large degree, elsewhere supplanted the didactic method of instruction, as it has been found to yield better results in less time. There is great temptation in the didactic method to teach principles, before a knowledge of facts has been acquired. This is unphysiological, wasteful of energy, and comparatively a failure, so far as the quality of the result is concerned. As an illustration of the comparative value of the two methods in the theoretical branches, we may take chemistry as an example, and as a particular instance assume that the effect of pressure and temperature upon gaseous volume is the matter of instruction. By the didactic method, with its corollary of text-book study, the student is taught by the lecturer, the law of Boyle, that the volume of any gas varies directly as the temperature and indirectly as the pressure. This he memorizes and reasons deductively from this law to the facts concerning it. The process, unless the student

was previously trained in methods of abstract reasoning, is tedious and difficult, because abnormal and unphysiological, and undoubtedly the exact reverse of the method by which the enunciator of the law arrived at it himself. If the student had first been made familiar with the facts that gaseous volume is increased by temperature and decreased by pressure and had been told that these phenomena were uniform for all gases, he would, by the process of inductive reasoning, have formulated the law for himself, and by the same methods pursued by its discoverer. We should make the acquisition of knowledge a pleasure, not a labour, and the surest means to that end is the careful and intelligent elaboration of the principles involved in the technic idea of instruction, and their application to all departments of our educational system.

Dental Practitioner.

TRANSILLUMINATION IN THE DIAGNOSIS OF EMPYEMA OF THE ANTRUM OF HIGHMORE.

By E. FURNISS POTTER, M.D. Brux., M.R.C.S.,
L.R.C.P. Lond.

In March, 1896, I saw a patient, a young woman, in whom I found good reason for suspecting the presence of pus in the right maxillary antrum. I therefore made an exploratory puncture with a Lichwitz's trocar through the outer wall of the inferior meatus, and established the diagnosis by washing out the antral cavity with weak carbolic lotion syringed through the trocar, and finding that the fluid as it escaped through the ostium and anterior nares was rendered turbid by a quantity of foul-smelling curdy-looking pus. I had previously ascertained that the nasal fossa was free from discharge. This procedure was undertaken for the purpose of diagnosis only, and it was intended to follow it up by making a permanent opening in the alveolus, but to suit the convenience of the patient this was postponed; and when I saw her again shortly afterwards the one syringing had apparently practically effected a cure, as she stated she had lost her symptoms and had had no discharge. On examining the nose there was no sign of pus, therefore it was decided to defer making the alveolar opening for the time being. Since

then I have seen her at frequent intervals, but have never succeeded in discovering any pus in the nares, though she has suffered from slight postnasal catarrh, which made her think that her old discharge was flowing backwards into the throat. The other day she was examined by means of the transilluminator, with the result that a "very decided absence of the suborbital crescent" was observed. I again punctured the antrum as before, and expelled by syringing a very little white curdy-looking matter—certainly not more than half a drachm—quite insufficient I should say to account for the opacity, which I think must have been due to greater thickness of the anterior antral wall on the right side.

The idea which suggests itself to me is, Why trouble with the transilluminator in cases of suspected empyema of the maxillary antrum when we have at hand such a simple and certain method of clinching the diagnosis as puncturing? It is practically painless (with the aid of cocaine) and free from danger. I have adopted it in a considerable number of cases, and have not seen the slightest ill consequence. I make it a rule to employ it in all cases of persistent purulent discharge from the nose, with the view of proving or excluding the presence of pus in the maxillary antrum, and have been astonished at the number of cases in which I have met with a positive result.

British Medical Journal.

THE PHYSIOLOGICAL ACTION OF EUCAINE.

Charteris (reprint from *Proceedings of Royal Society of Edinburgh*, Sess. 1895-96), assisted by MacLennan, has made a series of experiments on the physiological action of solutions of the hydrochlorate of eucaine and solutions of hydrochlorate of cocaine. Solutions of these salts were injected hypodermically into guinea-pigs of the same weight, and the results were compared. At first the quantity used was small, but it was gradually increased until the lethal dose of each was accurately ascertained. After repeated experiments they came to the conclusion that the lethal dose of eucaine per kilog. body weight is 0.09 g., and the lethal dose of cocaine per kilog. body weight 0.068 g. They also found that the mode of death by the two substances varied. With the

cocaine salt they observed more rotatory movements of the head, more opisthotonos, more salivation, and more laboured breathing, than with the eucaine salt. It was also noticed that the physiological action produced by a given dose of the eucaine salt, under identical conditions with regard to the weight of the animal experimented on. Hence the action of eucaine is slower in onset and less in intensity. As regards local anæsthetic effect, 3 drops of a solution of hydrochlorate of eucaine (1 in 10), when injected into the eye of a guinea-pig, induced in sixty seconds complete anæsthesia of the cornea. The pupil was not affected, and there was no subsequent irritation. When used in operations on the eye, the evidence is clear that it has no effect on the pupil. Berger, of Paris, in operating for cataract, employs first a drop of a 1 per cent. solution, and after three minutes a drop of a 2 per cent. solution. This procedure, he says, causes complete anæsthesia of the cornea. In dental practice it is found that 5 drops of a solution (1 in 10) injected into the gum before extraction of a tooth are sufficient to render this operation painless.

British Medical Journal.

PHYSICAL CHARACTERISTICS OF THE TEETH.

The *Dental Practitioner and Advertiser* summarizes the most important of the final conclusions of Dr. G. V. Black in his studies on the "Physical Characteristics of the Teeth," as contributed to the *Dental Cosmos*:

"Caries of the teeth is not dependent upon any condition of the tissues of the teeth, but on the condition of their environment.

There is no basis for the supposition that some teeth are too soft or too poorly calcified to bear filling with gold or other metal in use for that purpose, since all are found to be abundantly strong.

There is no basis for the supposition that the teeth of children under the age of twelve are too soft to receive metallic fillings.

There is no basis for the selection and adaptation of filling materials to soft teeth, hard teeth, frail teeth, or poorly calcified teeth.

With our present knowledge, the only basis for the selec-

tion and adaptation of filling materials is the operator's judgment as to which he can most perfectly manipulate.

There is no basis for the supposition that pericemental inflammation, or pyorrhoea, attacks dense teeth any more than those less dense.

There is no basis for the treatment of pregnant women medically with the view of preventing the softening of their own teeth, or for the production of better calcified teeth in their offspring."

AMERICAN DENTISTRY.

By Dr. A. V. ELLIOTT.

It is to the credit of many of these students and disciples who were actuated by a conscientious desire for improvement and were willing to go to the expense and travel so far for the sake of the advantages found in America, that they have kept up to the high standard brought with them from America, and have, I have no doubt, been amply rewarded by increased popularity and higher fees. From a broad and liberal point of view their conduct has been considered as a compliment to American dentistry, and appreciated accordingly. As students they have been welcomed and encouraged and every facility given them while in America to perfect themselves; and afterwards, when in practice for themselves, they have affiliated in a professional and social way with the native American who might perchance be practising near them. And of course, according to the law of the fitness of things, and in harmony with the spirit of American professional methods, they would in time become active and useful members of our society.

But, on the other hand (and now we come to a big but)—but on the other hand, some who have gone to America for the American diploma have not had in view the desire for enlightenment half as much as they had the desire to profit by the good reputation clever men had given to American dentistry. Their object was to get the diploma as quickly and cheaply as possible; and, unfortunately, where there is a demand there will always be a supply, and it was astonish-

ing how rapidly some of these men graduated. Some, even, by their "talents and accomplishments," were awarded "complimentary" diplomas. Others bought "Buchanan" diplomas—I was going to say in open market. At all events, what with the leniency and generosity of some of our colleges and the low market value of bogus diplomas, the good name and reputation of American dentistry must have suffered. As an illustration of the sentiment which actuated these humbugs, I recall what an Englishman whom I met in America confessed to me. He said he did not come to America to learn anything, because as a matter of fact he could teach them, the professors, his father and grandfather having been dentists before him. What he wanted was an American diploma, so that he could call himself an American dentist and get American prices, as the American dentist was all the fashion these days.

Understand me, I do not wish to imply that this man was a fair type of those desiring to obtain our degrees any more than was the Anglo-American I met in London afterward, who gave me the confidential advice to "do as we do." On asking him what "we" did, he said he extracted every tooth possible, as it saved bother, and plate work was more profitable than treatment. And yet this man practised as an "American dentist."

Southern Dental Journal.

RESULTS OF PREMATURE EXTRACTION.

By N. PEARSON, L.D.S. Toronto.

No dentist is able to determine what the result of premature extraction of a sixth year molar is going to be upon the undeveloped maxillary; the facial derangement is more than he is able to foresee.

After years of careful observation and study of many cases in regulating, by myself and others, where these teeth have been sacrificed and when not, I am strongly convinced that there is an injudicious and wholly unnecessary sacrifice of good teeth here. I may have to admit that once in a while a case is presented where extraction is advisable, but this is the

exception, while too many make it the rule. It is the shortest way out of a difficulty, the easiest way to settle the question. No account of the future years of lost usefulness, no consideration of facial expression, of the possibilities of a contraction of the maxillaries or of a deviation from the plane of the grinding surface by the future arrivals enter into the consideration; it is simply expedient to extract, and that ends it for the time being. No account of the future ever appears against us, no ghosts of the slaughtered innocents appear to trouble the conscience or rob us of repose. Notwithstanding all this, the principle is wrong, conceived in iniquity and born of ignorance, practised too much, and ought to be discontinued. Nature never provided a more fitting object for man's use at a more opportune time in a better plan than this same tooth, and am I, the learned and intelligent fellow-being who, by choice in a scientific speciality, and who is referred to by reason of my standing and experience, justified when I say, "I can do nothing for you," or am I justified when I say, "Oh yes, I can do so and so, but I do not choose to. I could save that tooth for a few years, but ultimately you will lose it, and it's better to lose it now; later on you won't miss it much." This looks like prostitution to me. I can't do it, and I don't do it. I save the semblance of a six year molar at all events for six years and until nature provides another to take its place to carry on the great work for which they are so vitally essential, which you all understand, and as much longer as skill and modern advanced dentistry may enable me to. Use your utmost skill in the case of these teeth, without regard to remuneration or desire of the patient. A duty awaits you and you must not shirk it. It does not excuse you to say that it is ulcerated, or the nerve is dead, or the patient is poor or ignorant. Save the tooth and put it down to charity, and cover a multitude of sins otherwise laid against you. As far as individual cases of extracting are concerned, as they are presented to the dentist for relieving present pain and where a denture is not immediately the question, I apprehend that there is no difference of opinion that all modern operators do make a decided attempt, and generally successfully, to save such a case. The point of hesitation and debate is generally when a few of the teeth are very much in need of treatment, or in case of a few good ones remaining and the others more or less involved in doubt as to the advisability of attempting their salvation. In the light of present progressive dentistry we can scarcely be excused in

our action if we recommend a resort to extraction, except in cases of badly decayed roots. I hold a strong prejudice against removing sound roots, preferring to fill even these, where they cannot be crowned and protecting the soft tissue and upholding the alveolus as long as possible. A healthy root may be serviceable for years, especially so after treatment and filling or capping.

Dominion Dental Journal

CONGENITAL TEETH.

J. W. Ballantyne (reprint from *Edinburgh Medical Journal*) gives details of 3 cases and references to some 70 more. He discusses fully the frequency, symptomatology, morbid anatomy, pathogenesis, and treatment of the anomaly, summing up the results of his research in the following general conclusions: 1. Congenital teeth form a rare anomaly, but one which has long been known both to the profession and to the public. 2. Their presence has often an ill effect upon lactation, partly on account of the imperfect closure of the infant's mouth, and partly by the wounding of the mother's nipple; sublingual ulceration may also be a result, and infantile diarrhoea and atrophy are more distant consequences. Sometimes, however, symptoms are altogether absent. 3. Congenital teeth have probably little or no prognostic significance as regards the bodily or mental vigour of the infant carrying them. 4. The teeth usually met with are lower incisors, but sometimes upper incisors may be seen, and very rarely molars of either the upper or lower jaw. Other facial or buccal malformations may occasionally be met with. 5. They are caused by the premature occurrence of the processes which normally lead to the cutting of the milk teeth; in a few cases it would seem that the anomaly is due to a true ectopia of the dental follicle and its contained tooth. 6. In a few instances a hereditary history has been established. 7. As the congenital teeth are usually incomplete and ill developed, and more likely to be more an inconvenience than an advantage to the infant they are best removed soon after birth, an operation which can be easily and, except in very rare instances, safely performed. 8. The occurrence of premature teeth in certain historical personages is an interesting fact, the importance of which has been much exaggerated.

British Medical Journal.

MUMMIFYING ROOT-CANALS—SODERBERG'S METHOD.

By Dr. KING.

Soderberg believes that some drugs can be combined to produce mummification, desiccation or parchmentation of the pulp without discolouration, and lays down the following propositions. The properties of an ideal mummification paste :

1st. Must contain an antiseptic sufficiently strong to prevent decomposition taking place while mummification sets in. Once mummified, the pulp is (so he believes) not very likely to become decomposed and putrid.

2d. It must contain an ingredient which will, as quickly as possible, cause mummification (drying or shrivelling) of the pulp-tissue.

3rd. It must contain a substance which, in conjunction with other ingredients, will impart a white colour to the mummified pulp and prevent discoloration of the teeth.

4th. It must contain an agent capable of binding the whole compound together in a pasty state, making it penetrate deeply and quickly.

In all, he experimented with thirteen different pastes ; first in the test-tubes, next with the freshly extracted teeth, the following formula proving the most reliable on the four points enumerated :

Dried alum	...	...	...	dr. ij.
Thymol	...	...	...	dr. ij.
Glycerol	...	...	...	dr. ij.

Zinc oxide q. s. to make stiff paste.

In this paste the thymol acts as the antiseptic, the alum as the mummifying agent, the zinc oxide the colouring medium, and the glycerol as the binding and penetrating agent.

His reason for adopting dried alum was that its tanning properties are far superior to those of tannin or any other tanning agent. He had it on the authority of the Senior partner of the largest tanning establishment in Sydney, Australia, that an ox hide can be tanned with dried alum in less than one tenth the time that any other substance consumes in the process. At the time his article appeared in the

November *Cosmos*, 1895, he had used this paste for more than twelve months in practice, and so far, not a case out of a total of ninety-seven had abscessed.

He claims to have removed test fillings, three, six, nine and twelve months after the pulp treatment took place.

In all, the same satisfactory results were observed—mummification of the pulp. One, he says, he especially wishes to record. He had occasion to extract an upper third molar treated seventeen days previously. On immediately splitting the tooth he found the pulp in the root canals perfectly mummified down to the very foramen. Whether the experiments are carried on with teeth *in situ*, or with extracted teeth, the mummified pulps always present the same appearance, viz. : a perfectly dry parchment-like mass, with a faint odor of thymol and a white color.

The mode of procedure is as follows: First devitalize the tooth thoroughly. In a letter, Dr. Soderberg requests me to make this point more emphatic than he did in his paper. "Alum exsiccat being a strong astringent (the strongest we know) some hours' afterpain will be the result if full devitalization has not taken place." For safety's sake, he makes it a rule to mix some cocain crystals with the paste before applying it. For the purpose of devitalizing the pulp, he recommends a paste of arsenic, cocain and alum, equal parts, glycerin q. s., to render the ingredients the proper consistency, sealing with sticky wax.

I prefer cement, however, for this purpose; allowing the application to remain from seven to ten days. Adjust the rubberdam when possible, open the pulp-chamber thoroughly and drill out the contents with a bur, leaving the root canals untouched. Now apply the Soderberg paste, for desiccating, mummifying or parchmentation, to that portion of the pulp left in the canals. He fills the pulp-chamber with the paste and gently pricks it into the nerve-tissue with a flexible Donaldson bristle, but does not deem this necessary. In my own practice I press the paste gently over the canals with a burnisher and seal with cement, and insert the permanent filling exactly as Soderberg recommends.

Western Journal.

TOOTHACHE REMEDY :—

R.	Tr. iodinii	...	..	f3iv.
	Tr. aconiti	...	...	f3j.

M. Sig.: Paint the gums twice daily around the painful tooth.

DENTAL HÆMORRHAGE.

Dr. J. VAN PELT WICKS, Brooklyn, N.Y.

By chance I tried carbolized rosin in hæmorrhage. I do not pronounce it the "greatest styptic in the world," but I do claim it has never failed me.

As the result of experiment, this is the formula I prefer :

R. Pulverized rosin (common)	...	3iv.
Carbolic acid (95 per cent.)	...	3jii.
Chloroform	...	3ji.

M.

Make a short, thick cotton rope, larger than the wound to be treated, moisten the end well with the compound and plug the cavity tightly. The bleeding will cease almost as if by magic.

Its adherence to the tissue in which it is placed makes it unlikely to be forced out of its place by the pressure of the blood.

After a wound caused by extraction of a tooth has been plugged with cotton for four or five hours, considerable pain ensues, caused by the pressure of the cotton ; so I advise patients to remove cotton after a lapse of a few hours.

Besides being so valuable a styptic, carbolized rosin is almost a specific for toothache if caused by exposed pulp.

Items of Interest.

A SIMPLE REGULATING APPLIANCE.

By GEO. M. CAMERON, D.D.S., Chicago.

The average regulating appliance as offered in our journals is no doubt the result of much patient labour and experiment, and in the hands of the inventor or a skilled crown and bridge worker, with a complete laboratory, is his ideal. But as there are others who are not prepared for that class of work and probably are not familiar with this serviceable "old timer," I will to explain it fully, give a case in practice.

A girl, aged 18, presented with the superior incisors close inside the inferior. I took full upper impression in modelling compound, trimmed out or enlarged molars and bicuspsids, filled and separated. Waxed up model, extending over molars and bicuspsids and to cutting edge of incisors, building up level with latter and extending back at same level for one quarter of an inch. Placed wax in mouth and had patient bite, leaving room for incisors to clear; removed wax, put on hooded flask vulcanizer and finished. Then drilled seats or openings, one for each tooth, to be moved in plate as near centre of point of contact as possible, being careful to have seat deeper than its diameter. From a large piece of Sea Tangle Tent (any druggist can furnish it) made plugs to fit the holes bored and drove in firmly, cutting off close with a wedge-cutter. Then inserted plate and changed plugs every day for five days, making them a trifle longer each time. On sixth day teeth seemed to be moving too rapidly, so put in plugs of orange-wood of length sufficient to hold to position gained and dismissed for three days. At end of that time, the conditions being favourable, continued with the plugs of sea tent for five days more, changing daily as before. Then, having obtained the desired positions, put in orange-wood plugs as before and dismissed for a week; at the expiration of which period removed plate and dismissed patient.

The teeth were not sore at any time and the only inconvenience suffered was occasioned by difficulty in masticating solid food, the grinding surface being limited to the contact between lower molars and plate. The plate can be removed at any time, but I think a thorough cleansing when changing the plugs is sufficient, except during time plugs of hardwood are used, when the patient can remove plate once daily, but only long enough to clean.

In the above case a retaining plate was not necessary, and one is seldom required in the class of cases to which this method applies.

Dental Digest.

TEMPORARY STOPPING.—Modelling composition forms an excellent temporary stopping. It is a nonconductor, and the temperature of the mouth keeps it in a condition to be easily removed. It will wear for weeks.

G. V. N. Rebye, in Dominion Journal.

COATING CASTS FOR VULCANITE WORK.

Procure a quarter of an ounce of collodion, add to this three-quarters of an ounce of sulphuric ether, so as to thin the collodion down, and pour into the bottle containing these a package of "silver gloss." This is a preparation of tin and zinc and may be obtained of all dealers in paints, oils, etc. Though called silver gloss it contains no silver. It comes put up in papers of an ounce or more, in the form of an impalpable powder. It unites to a certain extent with the collodion, when shaken, and is applied to the face of the plaster cast, as well as to the reverse of the investment in the case flaked for vulcanite work, with a camels-hair pencil, leaving a very even and thin film over these, which effectually prevents the adhesion of the vulcanite to the plaster, permitting the case to come from the flask clean. The silver gloss may be had at slight expense, enough to last for a year or more with ordinary use. Should particles of it adhere to the plate, it can be entirely eaten off by immersing in a bath of nitric acid and water—one-quarter acid, three-quarters water; but this we have not found necessary as it comes from the flask clean.

Dental Office and Laboratory.

PLASTER IMPRESSIONS.

By CHARLES BOXTON, D.D.S., San Francisco.

How to obtain full upper plaster impression.—In taking an impression the less directions given to the patient the easier it is for the operator. Select a tray the proper size and shape, place the plaster around its floor, making it thin on the palate, *unless it is a very high arch*, high all around the outer flange of the tray. The operator stands to the right and rear of the patient, the mouth should be opened just wide enough to admit the tray and contents, so as to allow of its greatest lateral distension. This is especially necessary when the mouth is small and the jaw relatively wide. The right side of the mouth is pressed away with the corner of the tray, the left side is distended with one or two

fingers of the left hand. When the tray is in its proper position the back edge is forced up in place with the forefinger of each hand; the pressure is gradually brought forward, and when in position, the lip is drawn down, thus forcing the plaster well up under the lip. Everything being in place, request the patient to lean forward. While the plaster is setting the tray must be held perfectly steady.

How to obtain full lower impression in plaster.—In taking full lower impression, proceed as for a full upper with the exception that the operator stands on the right and front of the patient, and the left side of the mouth is pressed away with the corner of the tray. The right side is distended with one or two fingers of the left hand. Request the patient to raise the tongue as soon as tray is placed in mouth; after pressing tray down run finger along outer side forcing the cheek out and plaster down; have patient lower tongue to force plaster close to ridge; have patient lean forward, and hold firmly in place until plaster is hard.

How to obtain full upper or lower impression in wax and plaster.—First obtain impression in wax, then remove about one line of thickness of wax surface after hardening it, mix a thin batter of plaster and cover the surface of wax impression; place in mouth, adjust it to ridge and apply pressure upward, hold firmly in position until it hardens.

How may a partial impression be obtained with wax and plaster?—By first taking an impression with wax and, when hard, removing a line in depth of entire surface and enlarging impression of the natural teeth; then roughen the wax surface with point of knife to enable plaster to adhere to it, then pour plaster over wax surface, filling impression of teeth, and return to mouth.

TO ADD GOLD TO AN OLD GOLD FILLING.—When a tooth has broken, leaving a gold filling otherwise in good condition, cleanse the surface of the filling with alcohol and chloroform, and dry with bibulous paper and hot air. Anneal the surface with the flame from a minute ball of cotton on a probe, dipped in alcohol, and ignited, heating as hot as can be borne by the patient. Then pack new gold on the surface, the union between old and new gold being indistinguishable.

Dr. I. Wilson Moore, in Cosmos.

Reports of Societies.

STUDENTS' SOCIETY, NATIONAL DENTAL HOSPITAL.

The last meeting of this Society was held on Monday, March 8th, 1897.

The President, Dr. Cunningham, having taken the chair, the minutes of the last meeting were read and confirmed.

A proposal from the Council to change the day of meeting from the first Friday in the month to the second Monday, was read.

A heated discussion followed in which Dr. Cunningham, Messrs. T. G. Read, Gudgeon, Storey, and Must, supported, and Messrs. C. W. Glassington, Greetham and Etheridge opposed the proposal.

The President then put it to the meeting, the Rule 13 of the Society should stand: "That the Ordinary Meetings of the Society shall be held on the second Monday in each month, from October to June, both inclusive, the meetings to commence at 8 p.m. precisely."

On being put to the vote the proposal was carried by 17 votes to 8.

Mr. Whitrod was proposed a member of the Society, to be ballotted for at the next meeting.

The President then called on Dr. Maughan for his paper on Hypnotism, which is published on page 391.

DISCUSSION.

Dr. FORBES WINSLOW thanked Dr. Maughan for his interesting paper, and said he agreed with him as to the beneficial results of hypnotism. He said that he saw on the average from 30 to 40 hypnotic cases a week, mostly for nervous complaints where there was no organic disease.

He himself always used a transfer medium, and just lately by this means he had treated successfully a case of lumbago, in which case the face of the medium was contorted as if the pain were focussing into him.

He remarked that no one could be hypnotised against their will, and that it was always necessary, as it were, for the patient to give themselves up to the operator.

He thought that anæsthesia for the extraction of teeth may be produced by this means. It was quite possible for a man to hypnotise himself. He had seen a case in which a man

had hypnotised himself, and then broken an ordinary glass tumbler, and then had taken a handful of the glass fragments and had placed them in his mouth, and chewed them up into smaller pieces, when he had spit them out, and there was not the slightest trace of hæmorrhage. He thought hypnotism a science now in its infancy, which to his mind had a slur cast on it by public exhibitions, and should only be practised by professional men.

He related a case told to him by a French doctor, which he also believed had been published. It was the case of a lady who had gone to him suffering from headache and depression. He had placed her under the influence, and then had put an iron band on her head and told her that the pain would pass into the band. He removed the band, and the lady stated that all the pain had vanished. The iron band was put away in a cupboard and was forgotten, and some three weeks or so after, he had occasion to go to the cupboard, and without thinking placed the band on his own head, and for the rest of the day he suffered from a feeling of depression.

Dr. ROUND spoke of relief from neuralgia by hypnotism, where morphia had failed, and said he had been with Dr. Winslow when the man had chewed glass, and could vouch for the statement that there was no hæmorrhage.

Mr. ETHERIDGE asked Dr. Maughan if the nervous system suffered by continued use of hypnotism.

Mr. GUDGEON asked if crimes could be committed under the influence of hypnotism.

Mr. STOREY spoke of a successful case of extraction under hypnotism, in which there was no pain, and hardly any bleeding.

Dr. CUNNINGHAM said that as a student in Edinburgh he had attended a public exhibition of hypnotism, but had felt no effect when it was tried on him.

Messrs. Greetham, Wing, and Laurence also joined in the discussion.

Dr. MAUGHAN in reply to Mr. Etheridge, said that the more a person was placed under the influence, the more susceptible one became; and in reply to Mr. Gudgeon that in a moral person the resistance was so strong that no crime could be committed under its influence.

A hearty vote of thanks was proposed by the President to Dr. Maughan for his interesting paper, and to the gentlemen who took part in the discussion, and was carried unanimously, after which the meeting terminated.]

Dental News.

BRIGHTON BOROUGH BENCH.

The case of Moss Harris, of 99, Western-road, dentist, who was summoned for using the title of dentist, and representing himself as qualified in dentistry, contrary to the provisions of the Dentists' Act, 1878, again came before the Bench.

Mr. B. Jacobs, who appeared for the defence, applied for a further adjournment, on the ground that a test case was pending in the law Courts.

Mr. W. H. Blaber (of the firm of Messrs. Blaber and Watson, 12, Great Castle-street, Oxford Circus, W.), who prosecuted on behalf of the dental profession in Brighton, opposed the adjournment, but it being understood that the case would be finally disposed of when it came again before the Court, it was adjourned to May 18th.

DEATH UNDER CHLOROFORM.

An inquest was held at Southampton, on March 9th, on the body of John Lyons Horne, aged 10 years, who died whilst under the influence of chloroform, which had been administered for the purpose of extracting some teeth. In his evidence Dr. Russell Bencraft stated that the chloroform used was Duncan and Flockhart's, and about 2 drachms were used for the whole operation. After examining the heart and pulse of the deceased he proceeded to administer the chloroform by sprinkling a few drops at a time on a handkerchief. After about five minutes there was a little vomiting, and a few more whiffs were administered. Four stumps were then removed, and during the extraction of the fourth the child cried out a little, when a little more chloroform was administered in order that the operation might be proceeded with, when the child suddenly became pulseless. Artificial respiration was immediately resorted to and kept up for quite half an hour, but without avail. Death was attributed to syncope from sudden failure of the heart's action.

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THE MICROSCOPICAL ASPECT OF CERTAIN LESIONS INDUCED BY DENTAL CARIES.*

By A. HOPEWELL SMITH, L.R.C.P. Lond., M.R.C.S.,
L.D.S. Eng.

Mr. President and Gentlemen,—In directing your attention for a brief space of time to-night to the consideration of the communication which has been announced, the subject will be approached from a somewhat different standpoint to that usually included under similar titles. Literally speaking, the study of local lesions induced by dental caries assumes vast proportions, and embraces numerous side issues. To the chief striking and important points of a patho-histological nature that are found in sections of carious teeth, these remarks will be strictly confined; the main attempt being devoted to descriptions of specimens prepared by those decalcifying processes in which the hard and soft parts are retained in close anatomical relationship.

As the majority of the pathological conditions met with in the mouth are due to causes which operate from the outside, only a few being produced by endo-genetic disturbances, this paper will treat of some of the many conditions primarily brought about by extrinsic or purely dentinal changes.

It is extremely probable that morbid affections of Nas-

* Read before the Odontological Society of Great Britain.

myth's membrane and enamel *per se* (products of the stomodæal epiblast), have a certain influence on the subjacent tissues,* but of this part of the subject we need not now speak. It is considering the variations that take place before and after carious penetration into the pulp chamber with which we have here to deal.

But caries is not the sole factor in the formation of calcareous masses in the pulp and on the walls of its cavity; traumatism, senile changes, and idiopathic conditions frequently share in its production.

It would save a great confusion of ideas if three kinds of dentinal deposition were generally recognised: (1) Calcareous degeneration of the pulp, a constant accompaniment of caries, but also found occasionally in sound teeth as the result of vascular changes due to idiopathic or constitutional causes; (2) Secondary dentine, occurring not only as a pathological process in cases of attrition, abrasion or fracture, but physiologically, as the result of senile changes in both permanent and long-retained deciduous teeth; and (3) Adventitious dentine, the product of caries.

Salter's† patient and remarkable investigations in this particular portion of dental pathology led him to classify all forms of dentine deposition as secondary dentine, and in a sense this was perfectly correct.

But the term seems to require a more definite meaning; for he describes under this one heading three forms, viz., dentine of repair, dentine excrescence, and osteo-dentine or intrinsic calcification of the pulp.

The adjoining scheme is intended to show the chief results of pathological changes taking place in the dentine and the pulp of a tooth.

* This was written (1896) prior to the publication of Leon Williams' communication, entitled, "A Contribution to the Study of the Pathology of Enamel," to the Odontological Society of New York.

† "Dental Pathology and Surgery," chap. xi. and xii., 1874.

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|--|---|--|
| <p>I.
<i>Calcareous degeneration of Pulp</i>, through changes in pulp alone.</p> | } | <p>(a) Common. Due to vascular changes in pulp, in association with caries.
(b) Rare. Due to idiopathic or constitutional changes, <i>e.g.</i>, gout.</p> |
| <p>II.
<i>Secondary dentine in Pulp Cavity</i>, through changes in the primary dentine and pulp.</p> | } | <p>(a) Physiological. Due to senile conditions of both permanent and long-retained deciduous teeth.
(b) Pathological. Due to attrition, abrasion, or fracture.</p> |
| <p>III.
<i>Adventitious dentine in Pulp Cavity</i>, through changes in the primary dentine and pulp.</p> | } | <p>Due to caries.</p> |

Peripheral carious stimulation of the dentine is accompanied by destructive as well as constructive metamorphoses; tissue waste and tissue repair go on side by side. At first the soft parts alone suffer; the dentinal fibrils and their enclosing tubules, in parts of their courses, are affected and soon become disorganised, the blood vessels and tissue of the pulp undergo hyperæmic and other changes. Thus a superficial carious patch beneath the enamel is associated with marked cellular activity on the part of the pulp; while there is a loss of substance externally, there is a gain internally. This is exemplified in the formation under certain circumstances of "dentine of repair." In other words, caries, even in its early stages, usually leads to a deposit of new adventitious dentine on the surface of the pulp.

But later on bacterial agencies multiply and accumulate, advancement renders them still more potent, and development means destruction. For now not only do the dentinal tubules and matrix also become involved in the general dissolution, but any adventitious tissues that may have been developed rapidly break down, and soon the work of demolition is complete. A study of these phenomena possesses several points of profound interest.

(A) *Conditions associated with Superficial Caries.*

Viewed from a clinical aspect, it may be said that the com-

mencement of caries is marked, as a rule, by one of two distinct types of lesions: (1) the not uncommon clean-cut cavity which by its general appearance suggests erosion; and (2) the usual cavity of decay. The former is distinguished by its position on the cervical portion of the labial aspect of the anterior teeth, and by its intense hyperæsthesia on receiving interrupted tactile impressions; the latter is recognised by its inability to transmit slight functional impulses to the pulp. Microscopically the difference between these two classes is well defined, the first named particularly presenting marked deviations from the usual type of decay.

(1) Here the sub-enamel region of the dentine contains not only the usual "granular layer," but also areas occupied by large interglobular spaces, which are distributed with more or less regularity throughout its substance. Micro-organisms are present in enormous numbers at the margin of the cavity, and fill the tubules for varying distances. Opposite the breach of surface a corresponding deposit of adventitious dentine with enlarged irregular tubules is observed. The layer of tissue "on the borderland of calcification," is increased in thickness and exhibits a greater quantity of calco-globular masses than normally. They are, however, very small. In the pulp, slight hyperæmia and cell proliferation have certainly occurred in this locality and its neighbourhood; and the peripheral cells, which present many of the appearances of the so-called odontoblasts, are multiplied greatly. Beyond, the tissues may be considered to be normal, with the exception perhaps of the smaller blood-vessels, whose lamina are more or less increased in size. Rounded cylindrical deposits of new dentine constantly exist in the central portions of the pulp, and point to a degenerative process. The changes from the normal to the pathological areas are very gradual, no sharp line of demarcation cutting them off from the other parts of the soft tissues.

Referring to the statement just enunciated that "the so called odontoblasts are multiplied greatly," it must not be inferred that these cells are merely increased in point of numbers. They are profoundly modified, inasmuch as they now possess certain new characteristics. Their nuclei have become elongated and flattened, and are rendered very prominent when any of the nuclear stains have been used, and perhaps they are more granular than usual. The cell walls are indistinguishable, chiefly from the fact that each odontoblast is compressed laterally by its neighbours. In some instances they are gathered into sheaves. Some observers might describe the appearances as being due to an indirect splitting-up of the cells, and it is not difficult to conceive an odontoblast, when once fully formed, undergoing the process of karyokinesis. In sections prepared by Weil's method (and for this the writer's best thanks are due to Mr. W. H. Must), macroscopically the tubules in the primary dentine below the breach of surface are unaffected by stains and clearly differentiated from other tubules, and a band of altered pulp tissue extends right across that organ.

Thus at the very outset we meet with two most remarkable conditions, and our attention is immediately arrested by their presence. These are the multiplication of the numbers of interglobular spaces, and also of the so-called odontoblast cells—phenomena which are entirely absent from all ordinary conditions.

There would, therefore, seem to be some connection between the subjective symptoms of pain and these fresh developments—or at all events one of those fresh developments—and this leads one to the conclusion that the degree of the sensitiveness of these cavities is dependent chiefly on the increase or diminution in the numbers of the interglobular spaces.

Bodecker,* in speaking of dentinal irritation in the case of ordinary caries, attributes the sensations of pain to "alternate contractions and expansions of living matter" in dentine and enamel, "conveyed from the periphery to the centre of the tooth, these intense contractions being induced by highly irritating agencies."

But it must be remembered that it is mechanical stimulation alone of the floor of these particular cavities that gives rise to pain; and we must infer, with greater accuracy in the light of our knowledge of the physiological stimulation of nerves and protoplasm generally, that the pathic disturbances are due here to direct impulses, which pass by means of the dentinal fibrils from the protoplasmic contents of the interglobular spaces to the ultimate ramifications of the sensory pulp nerves.

The occurrence of additions to the numbers of the long odontoblast pulp cells does not admit of quite so easy an explanation, and on this question the opinions of those who have worked at this branch of the subject would be welcomed. The American author† just quoted has indirectly noticed, although he has not figured this phenomenon. He says: "The first change in the affected pulp-tissue is its reduction to an embryonal or protoplasmic state"—a statement which is certainly not verified on examination of my own microscopic preparations. Further, he writes:—"Should the lymph-tissue be reduced to its embryonal conditions as above indicated, the protoplasm present before transformation into basis-substance reappears, and *may break up into odontoblasts or into osteoblasts*. In the former case, the result of irritation of the pulp-tissue will be *dentine*, in the latter *bone*." The method of thus interpreting the genesis of these lime-bearing cells is crude and illogical.

* "Anatomy and Pathology of the Teeth," 1894, p. 288.

† *Op. cit.*

True bony formations are most rarely found in the tooth-pulp ; such a case, however, has been recorded by Messrs. J. F. Colyer and Ackery*, but calcareous deposits are exceedingly common.

Compact osseous tissue consists of Haversian canals, concentric and intermediary lamellæ, lacunæ, and canaliculi, with blood vessels, osteoblasts, connective tissue, branched bone corpuscles, and minute lymphatic systems. And if these component parts are non-existent, it is a mistake to pronounce the new formation bone.

The local increase in the numbers of the odontoblasts may show that, in certain situations, there is a greater need for the higher and more sustained exercise of their functions, these functions, in my opinion, consisting wholly of shielding the delicate pulp from incoming dangers ; not by the production of dentine matrix, but by physiologically creating a larger or more concentrated area of trophic influence or control—if one may so speak—on the surface of that organ, whereby its vitality may be retained until the latest possible moment ; or it may be that the odontoblasts have merely undergone cell-subdivision. This is probably the correct view to hold.

(2) Turning, in the second place, to cases in which the dentine is well developed and free from irregularities, the subjective pain symptoms do not, as a rule, appear until there is almost penetration into the pulp chamber, no matter how rapidly the carious encroachments may take place. But the pulp exhibits similar microscopical characteristics to those already detailed, the most obvious being cell proliferation and odontoblast multiplication with isolated cylindrical dentine formations in the neighbourhood of the vessels. Regional

* "Transactions of the Odontological Society of Great Britain, vol. xxv., No. 3.

hypermia* is often present, that is, the capillaries and blood vessels are rather larger and have thinner walls than normal.

Pain here is undoubtedly due to lateral pressure on the nerve bundles, the chief factors being the hyperæmia of the blood vessels, the cellular infiltration of the tissues, and the presence of new dentine nodules.† If inflammation supervenes, pain is greatly intensified by pressure on the pulp tissues of the serous exudation from the vessels. It is probable also that pathological changes occur in the axis-cylinders and sheaths of the nerve-fibres themselves.

The present research has not yet investigated the changes in the pulp (if any) which may be associated with "zones of translucency" in the dentine, nor in cases in which the caries has undergone spontaneous arrest.

(B) *Conditions associated with deep Caries.*

When, however, caries has advanced as far as the formation of a deep and extensive cavity in the dentine, then fresh structures are seen and must now be described.

The odontoblasts at the cervical region are enormously multiplied in point of numbers and layers. The cells themselves are not enlarged, but possess prominent oval nuclei which are much flattened laterally. Interposed here and there are small, hitherto undescribed translucent globules, structureless and non-laminated, but similar in other respects to tiny calcospherite spherules. These are seen at the dentine border between the cells, and sometimes in Weil's layer. At the juncture of the carious region with the primary or first-formed dentine the latest deposited dentine, has at its periphery, the globular appearances observed during developmental periods. It takes aniline dyes more deeply than the

* "Regional hyperæmia" is a term used in this connection to denote a localised partial hyperæmic condition of the blood vessels. Thus one may speak of "coronal," or "cornual," "cervical," "radicular hyperæmia"—according to its situation.

† See Sewill, "Dental Surgery," 1890, p. 234.

normal dentine, from which it is highly differentiated. This new tissue may be called "adventitious" dentine—a term which includes several varieties to be hereafter noted. At the place where the carious tubules open into this freshly deposited layer, the odontoblasts are considerably shrunk, and pressed inwards towards the pulp. They are disposed in one, or at most, two layers, and their peripheral poles (dental fibrils) are greatly enlarged and swollen. The layer of Weil is most marked here. Micrococci and bacilli infect the newly formed tubes, and in some places expand them. And where tubular expansion has been effected, there the odontoblasts are absent, their places being occupied by a homogeneous mass of broken-down cells, with a few nuclei scattered about. Intense hyperæmia is distinguished by enlargement and tortuosity of the capillaries and arterioles, their engorgement with blood, and emigration of leucocytes.

As the thin sheet of adventitious dentine gradually widens out, the odontoblasts become elongated, remaining all the time in one layer, their fibrils, each with its individual enveloping tube, being of normal size, and stretching across the new dentine at fairly regular intervals. The cells themselves are sometimes gathered into sheaves. With the widening of the sheet of dentine, they become smaller and shorter, and diminish rapidly in number, until they disappear altogether.

Meanwhile the adventitious dentine presents the well-known appearance of areolation almost identical with that of the inter-globular spaces. This areolar adventitious dentine is one of the most commonly recurring of varieties. The tubules which cross the spaces, sparingly filled with round and rod-shaped micro-organisms, enlarge greatly as they extend inwards, and terminate with wide mouths at their pulpar extremities. This is probably caused by partial softening of the inter-tubular matrix. The structure of the pulp

itself at this place is of the homogenous character already noted. The dentine which fills the cornua of the pulp exhibits irregular formations, as if deposition had taken place in a hurried manner. Not only are nucleated cells with long processes embedded in the hard mass, but large lacunal spaces are frequent, each containing micrococci which have entered *via* the tubules of the primary dentine. In some instances this cellular dentine resembles somewhat the structure of sponge.

A bacteriological survey of the same specimens of hyperæmia and early stages of the lesions which Rothmann* has designated "Partial acute pulpitis," and Wedl† "Pulpitis acuta partialis," furnishes one with some valuable particulars as to the probable distribution of the micro-organisms in the pulp and surrounding tissue. Miller‡ has isolated, cultivated and named the most important of the cocci and bacilli; here we have an opportunity of describing the probable routes of their invasion of the pulp itself. The micro-organisms, after their introduction into the pulp cavity, are believed to make their way in chains, groups, or zooglia masses to the spaces between the odontoblast layer, the dento-genetic and ordinary pulp cells on the one side, and the border of dentine on the other; and also to the interpolar (interfibrillar) spaces, and the intercellular intervals. Thence they travel apparently to the basal layer of Weil, although here they are not congregated in such large or such numerous masses. Whatever their point of entrance, they soon pass to some considerable distance along the line of junction of the hard and soft tissues.

Further, they are found in the substance of the pulp proper chiefly arranged along the walls, of the blood vessels, in their

* "Patho-Histologie der Zahnpulpa und Wurzelhart," 1889

† "Atlas zur Pathologie der Zähne," 1893, pp. 68, 69.

‡ "Micro-organisms of the Human Mouth."

interiors (when empty), and in the perivascular tissues. Infection of the nerve fasciculi most probably does not take place. The micrococci predominate largely over the rod-shaped organisms. The central and peripheral portions of the adventitious dentine are crammed with micro-organisms, but when the odontoblast fibrils with their sheaths cross the areolations of this new deposit, no cocci can be found.

From these investigations, therefore, it will be seen that, as a result, one is unable to coincide with Arkovy's theory of the phagocytic function of the odontoblasts.* They certainly possess a granular appearance, but a search for any micro-organisms which have become incorporated in the substance of their protoplasm or nuclei is attended with negative results.

If the course of the disease is progressive, inflammatory foci appear. These consist of proliferated connective tissue cells (macrophages), pulp cells, and mono- or poly-nuclear leucocytes which have escaped from the numerous enlarged capillaries, all having been attracted together by a kind of positive chemio-taxis. The foci are very pronounced, commence at first in one or both of the cornua of the pulp opposite the carious dentine, and as a rule ultimately suppurate and form localised abscesses. Rapid destruction of the pulp ensues, and the undermined dentine finally gives way in the majority of cases.

Sometimes a certain amount of fibrification of the cells lying in the immediate vicinity of the abscess occurs, and what might be termed a rudimentary abscess sac is developed. We are led to believe that this specialisation and grouping of spindle cells is not merely fortuitous, but a deliberate attempt on the part of the pulp to heal the lesion. The condition is observed in cases of chronic caries, the adventitious dentine

* See "Journal of Brit. Dent. Assoc., vol. xv., p. 602.

being then deposited in layers, and presenting a characteristic fibrillar structure. On the border-line of the hard and soft parts, the connective tissue structure of the dentine matrix is well brought out. Islands of dentine in the body of the pulp suggest that they are nothing more nor less than calcified bundles of connective tissue fibres mixed with cells; the process of their formation being analogous to that of intramembranous ossification of bone.

Leaving aside the further study of these lesions, we rapidly pass to a brief consideration of the

(C) *Conditions associated with penetrating Caries.*

Limitation of time affords these notes opportunity of speaking of no more than two phases of one of the commonest conditions found in the mouth, viz., idiopathic exposure of the pulp.

In median sections of teeth affected by acute caries, which has terminated in total inflammation and partial suppuration of the pulp it is obvious that the cells appear degenerate altogether. Connective tissue cells are broken down; the pulp cells have become changed into indifferent cells with large square nuclei, and escaped leucocytes crowd the tissues. Even the odontoblasts themselves at the cervical region are metamorphosed into short cells with rounded nuclei, and at the coronal part are opaque, and seem to have undergone fatty or mucoid degeneration.

Finally, at the periphery of the pulp the small globular deposits already mentioned, are found. The nerve bundles have lost their definite structure, and though retained in position are evidently less translucent and more disorganised. There are no clear evidences of fatty degeneration in the sections under notice, although Wedl* describes this as existing in his sections of acute purulent pulpitis. The tissues are

* *Op. cit.*, p. 71.

greatly condensed at the margins of the abscess cavity, the cells being short and fusiform, interlacing closely with each other. The blood vessels are hyperæmic, and micrococci and bacilli are abundantly distributed throughout the tissue.

The last condition which we shall now consider is that of a phase of acute partial suppurative inflammation of the pulp, in which that organ has been subjected to the devitalising action of arsenious acid for a period of not less than twelve hours.

In addition to appearances which denote the intensity of the inflammation—hyperæmia, marked cellular infiltration, suppuration and other changes common to acute inflammation in soft tissues—a prominent feature is a large special form of dentinal deposit which is situated at the base of the carious opening into the pulp chamber. It is irregularly rounded in shape. Its structure, in some places, is that of a more or less homogeneous matrix closely resembling that of hyaline cartilage, in other places it has a distinctly fibrous character.

Distributed throughout, and with no attempt at uniformity of arrangement, are rounded or oval spaces containing one or more cells with large round nuclei. The cells vary very much in size, those near the pulp side being six or eight times as large as the smaller ones near the dentine side. Towards the pulp side rows of encapsuled cells exist, some being multi-nucleated. The surrounding pulp tissue in immediate association with the new deposit consists chiefly of fusiform cells arranged in bundles interspersed with small round cells, the former possessing oval, and the latter round nuclei.

This particular form of cellular or hyaline adventitious dentine does not occur solely in acute inflammations of the pulp, it is also seen in chronic inflammation with hypertrophy (polypus) near the lower portion of the pulp cavity. In this

case it may be accompanied by new dentine which has a pronounced laminar structure.

In conclusion, a preliminary study of the patho-histology of these lesions leads one to the following deductions :—

(1) That nearly every degree of dentinal change is attended with hyperæmia, and cell proliferation in the pulp tissues, and generally speaking, the formation of adventitious dentine.

(2) That the latter may have its origin as a conversion or secretion of the dento-genetic cells, producing on the one hand the areolar or laminar or hyaline varieties, when the formative cells alone happen to be concerned ; on the other, the fibrillar or cellular forms when odontoblasts or connective tissue cells are by chance incorporated in the deposit.

(3) That there are no proofs that the cells called odontoblasts take any part in the production of the matrix of the new dentines, the term being therefore a misnomer ; and

(4) That the new dentines, by a system of extension from the affected areas, may be just as much subjected to the peptonising action of micro-organisms as the primary dentine of the tooth.

In thus submitting to your notice the foregoing statements we do not wish to assume an *ex cathedra* position, and declare that because the various structures have been revealed in certain—and in a limited number of—specimens, therefore they are common to *all* the conditions under whose heading they have been described, and can *always* be found under like circumstances. We do not wish to pronounce dogmatically on the *raison d'être* of many of the phenomena which have been observed, and we are aware that our conceptions and consequent interpretations of the microscopic appearances and their functions may possibly differ widely from those of other histologists who have worked at similar subjects. Therefore, gentlemen, you are asked to accept these state-

ments for what they are worth, and to rest assured that they are given to a scientific Society such as this, as an earnest endeavour to arrive at a truthful knowledge of a few of the important and profoundly interesting phenomena observed in lesions induced by dental caries.

ORAL SURGERY.

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Eng.

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(Continued from page 106).

FOREIGN BODIES IN THE UPPER AIR AND FOOD PASSAGES.

A great variety of substances may enter the nose, pharynx, larynx, trachea, or cesophagus, and becoming impacted there, produce urgent symptoms requiring prompt and decided treatment.

FOREIGN BODIES IN THE NOSE.

Foreign bodies in the nose are more common in children than in adults. They are usually introduced in play. Sometimes the accident is noticed at once, and the child is brought to the surgeon with a distinct history of a foreign body having been introduced ; the diagnosis is then easy, and removal can be effected with forceps or a bent probe. In the majority of cases there is no history of any foreign body having been introduced, and the child is brought on account of a purulent discharge from one nostril. The pus may be sanious or

brown, and in some cases very offensive. The occurrence of unilateral purulent discharge in a child should always lead to careful examination with speculum and probe, an anæsthetic being given if necessary. In a recent case the foreign body will be easily seen, but if it has been long resident in the nose it may be hidden by swollen mucous membrane, granulations, blood or pus. If seen, it usually looks black, either because that is its natural colour, or because it is covered with dried blood. When it cannot be seen the diagnosis must be made by the probe. It must be borne in mind that unilateral nasal discharge may sometimes result from syphilitic or tubercular disease, although these two conditions are much more common in adults and usually affect both sides of the nose.

Treatment. When the foreign body has been recently introduced, it can usually be removed with a probe bent into a hook, or with a narrow bladed pair of nasal forceps. When the foreign body has been impacted for some time an anæsthetic should be administered; a finger should then be inserted into the naso-pharynx lest the foreign body be pushed backwards and fall into the larynx. Sometimes the desired result may be obtained without any anæsthetic, by forcing air or a stream of water into the opposite nostril whilst the mouth and the affected nostril are kept open.

FOREIGN BODIES IN THE PHARYNX.

For practical purposes foreign bodies in this situation may be divided into two kinds.

(a) Small and sharp, such as pins and fish bones. These cause a sharp pain at the time of impaction, and subsequent irritation which may last for a long time even after the intruder has been removed.

(b) Large bodies such as masses of food or tooth plates. The chief symptom is dyspnoea. Occasionally a large foreign body may lodge in the pharynx and remain there without causing any serious trouble.

In all cases the nature and situation of the foreign body should be ascertained by careful inspection aided by a good light, and a laryngeal mirror. Sometimes the foreign body is hidden in a fold behind the tonsil and cannot be seen; in such cases the finger should be introduced and guided to the spot at which the patient feels pain. The finger should not be used until after failure of inspection, on account of the risk of driving a penetrating body further in, or even perforating a large vessel such as the carotid.

When the position of the foreign body has been discovered, it can usually be removed by forceps of suitable length and shape. Large bodies with sharp corners (such as tooth plates) when impacted low down may necessitate pharyngotomy.

FOREIGN BODIES IN THE LARYNX.

Foreign bodies in the larynx may be divided into two classes according to the symptoms they produce. (*a*) those that are large and cause urgent dyspnoea, or being small are so placed as to impede respiration. (*b*) Those that are small and which after the first paroxysm do not cause dyspnoea.

The symptoms may be divided into three stages. 1. Those of obstruction immediately following the introduction of the substance. 2. Those of irritation produced by its presence, and 3. Those of inflammation coming on at a later period.

1. *Symptoms of Obstruction.* When a large body such as a piece of meat becomes impacted at the entrance of the larynx, it may cause instant suffocation. Smaller bodies may also cause intense, even fatal dyspnoea by setting up reflex spasm of the glottis.

2. *Symptoms of Irritation.* The patient is usually first seen by the surgeon after the first attack of dyspnoea has passed off. The voice is then hoarse and croupy, there is a loud, rough sound in respiration, which is more or less impeded, and attended by attacks of spasmodic cough. In

adults a laryngoscopic examination may be made in the intervals between the attacks and the position of the foreign body ascertained. In children a laryngoscopic examination is almost impossible, but the foreign body may sometimes be detected by means of the finger passed down to the larynx.

3. *Symptoms of Inflammation.* If the foreign body remain impacted in the larynx, in a day or two it will set up laryngitis from which the patient may die.

Treatment. The treatment must necessarily vary with the urgency of the symptoms, and the nature of the foreign body. Where there is impending suffocation, and the substance cannot be dislodged with the finger, laryngotomy should be instantly performed, as this operation affords the easiest, safest and most rapid way of admitting air. When the symptoms are less urgent, a deliberate attempt should be made to remove the foreign body by forceps under the guidance of the laryngoscope. These means having failed, an external operation must be performed, the position of the opening being adapted to the position of the foreign body; thus when above the vocal cords, sub-hyoid pharyngotomy should be performed; when between the cords, or in the ventricle, thyro-chondrotomy; when below the cords laryngo-tracheotomy or tracheotomy.

FOREIGN BODIES IN THE TRACHEA AND BRONCHI.

Small objects such as buttons, coins, etc., may be drawn into the trachea, if a sudden inspiration is taken during the act of swallowing, or when such things are being held in the mouth. If the substance is light, it will probably remain free in the trachea, floating up and down with the current of air, but if heavy it will become impacted in the trachea or one of the bronchi. Elongated bodies such as a piece of pencil, more often find their way into the left bronchus, as its axis is more in line with the trachea, whereas rounded

bodies more often enter the right bronchus as its lumen at the tracheal bifurcation is larger.

The symptoms are divisible into the same stages as those of laryngeal foreign bodies. At first there is an attack of urgent dyspnœa upon the subsidence of which the most characteristic symptom is paroxysmal suffocative cough and dyspnœa in consequence of the foreign body being driven up against the glottis. These attacks of cough occur only when the body is free to move in the trachea. When it has become impacted in one of the bronchi, it prevents the air entering the corresponding lung, diminishing or abolishing the respiratory murmur. If the foreign body acts as a valve, and allows air to emerge from the lung whilst preventing any entering it, the result is collapse of the lung. If the foreign body remain long in the bronchus it is apt to set up bronchitis, pneumonia, or abscess in the lung; sometimes it may become encysted and do no further harm.

Treatment. Inversion and shaking may be tried in the first instance, but everything should be ready for immediate tracheotomy should the foreign body become impacted in the glottis. Probably the best treatment is to perform tracheotomy in every case, as soon as the patient comes under observation. It often happens that when the trachea is opened, the foreign body is expelled through the wound, or even through the mouth. Should immediate expulsion not occur, no tracheotomy tube should be inserted, but the edges of the tracheal wound should be kept apart with blunt hooks. Search may then be made by means of tracheal forceps or bent wire.

FOREIGN BODIES IN THE ŒSOPHAGUS.

Tooth plates, coins, etc., most often lodge in the commencement of the œsophagus opposite the cricoid cartilage.

The symptoms are pain, often referred to the episternal notch, a pricking sensation in the throat, difficulty in swallowing and sometimes dyspnoea if the foreign body exerts pressure on the air passage.

Extraction may be effected by means of pharyngeal forceps, the coin catcher, or the expanding horse-hair extractor. Should these means fail the case may be left for twenty-four hours if the substance is of a nature to become softer, and then a gentle attempt may be made to push it onwards towards the stomach with a sponge probang. If the foreign body resists all attempts to dislodge it, it may be necessary to open the œsophagus in the neck, or even in the thorax by resecting a portion of the third, fourth and fifth ribs midway between the spine and the left scapula.

Should an angular body such as a tooth-plate have passed into the stomach the patient should be directed to eat porridge, hair, cotton wool, etc., so that the sharp projections may be sufficiently covered to pass along the intestine without doing harm. If the foreign body is too large to pass the pyloric valve, gastrotomy must be performed.

(To be continued).

CHLORO-PERCHA AS AN INSULATOR.

Before setting crowns or bridges on hypersensitive teeth, it will be found that thoroughly coating the entire surface of the affected teeth with a film of chloro-percha will prevent the pain experienced from thermal changes in these teeth after being crowned, and will also prevent the pain produced by the acid in the cement while setting the crown.

D. W. Dillehay.

British Journal of Dental Science.

LONDON, MAY 15, 1897.

NITROUS OXIDE GAS.

Hardly a week passes but we receive intelligence of fatalities from the use of chloroform. We have always unhesitatingly denounced its use in dental practice, and recommended the employment of nitrous oxide, or this gas supplemented by ether instead. It has lately been our lot to chronicle the death of a patient under the latter combination of anæsthetics, and to publish the opinion of the medical man, that death was due to "the paralyzing action of the gas upon the heart." If this opinion had been allowed to go forth unchallenged and uncontradicted, it might have raised grave fears in the minds of those who are daily accustomed to administer this safest of anæsthetics. Dr. DUDLEY BUXTON however, in our last issue, has dealt with the report with the skill of an acknowledged expert, and has given a satisfactory denial to the statement made that gas paralyses the heart.

The facts, briefly recapitulated, are as follows. A young strong, healthy woman who has no morbid fear of an anæsthetic, or of the operation, namely the extraction of some decayed teeth, is given gas, followed by a drachm and a half of ether. The operator extracts three teeth, when suddenly the patient changes colour, stops breathing, and in spite of stimulants and artificial respiration, never recovers consciousness. What caused death? The medical man who made the post mortem examination, in reply to the Coroner, affirms "I think the gas was probably the cause, it paralysed the heart." Dr. BUXTON agrees with the medical man that syncope caused death, but differs from him in his theory that the syncope was produced by the gas, if the gas was

properly given. He seems to think that the anæsthetic was skilfully administered. Dr. BUXTON has shown, and his statement has been confirmed by other anæsthetists that nitrous oxide gas stimulates the action of the heart, if not pushed to the extent of depriving the tissues of oxygen to a dangerous extent. If this deprivation takes place for too long a period, syncope may result. From the evidence, two and a half to three minutes were expended in producing anæsthesia. "If this statement is to be taken literally, it must imply rebreathing of gas and ether, and a prolonged period of deprivation of oxygen." The usual time employed in producing anæsthesia with gas is about fifty seconds, and this is usually accompanied by cyanosis and jactitation, warning the administrator that the limit is reached. We have known cases in which gas has been administered for three minutes, but these were cases of advanced phthisis, where the breathing was very shallow. If the point approaching asphyxia is reached, whether by overdose of gas, interference with respiration, by the tongue being forced back, or some blood or foreign body in the larynx, the strain on the heart, as Dr. BUXTON points out, is very severe. This strain may be aggravated by the upright position in the chair, and by weakness produced by fasting or any other cause. The patient in this case, presumably had not taken solid food since the morning. Dr. BUXTON however, does not think that any deprivation of oxygen, either from the anæsthetic, or as the result of the operation, can be adduced from the evidence. He is inclined to think that death was caused through shock to the patient, whose vitality was at a low ebb in consequence of a prolonged fast.

What are the lessons to be learnt from this distressing case? We are so accustomed to use nitrous oxide gas at all times in our everyday work, that the very idea of a fatality rarely, if ever, occurs to us in hospital or private practice. Yet this sad occurrence "though neither nitrous oxide gas, or ether, are discredited by it," must bring home to our minds the fact that these operations are never wholly free from danger, and that we should be armed with the necessary

drugs and instruments, as well as with the knowledge of how to use them to the best advantage, as also the methods of forced respiration and inversion spoken of by Dr. BUXTON. While being careful not to administer the gas too soon after the patient has had a full meal, let us also be careful to enquire how long the subject has been fasting. We sometimes have patients wishing to take gas who from want of food and sleep have allowed their vital forces to sink to a very low ebb. In such cases it would be wiser to recommend the ingestion of some strengthening and quickly digestible food before the operation is proceeded with. We cannot think that we know every factor in this sad case. Such occurrences are, we are thankful to say, very rare, but we must let them serve to act as a warning to us when dealing with our fellow man, to take every precaution against such a disaster, and to omit nothing which may tend to avert such an end.

THE DENTIST IN INDIA.—It is going the rounds of the Press that a Madras dentist has received a sum of £700 for supplying His Highness the Nizam of Hyderabad with a row of false teeth ; but in case the exodus of dentists from this country to India should become serious, we publish the other side of the picture, as told by an American who received 1500 dollars for dental attendance on an Indian Prince and Court. He says one evening when he appeared at a dinner in full-dress suit, the Englishmen left the table as soon as they learned that he was a dentist. We do not think our countrymen would go without their dinner even for the pleasure of insulting an honourable profession. Perhaps the “full dress suit” was too much for them.

THE DENTICURE.—We have had the “manicure” and the “pedicure” long with us, but a new profession has lately been found for women, namely that of the “denticure.”

This enterprising lady calls on her fair clients and supplements or supplants the ministrations of the dentist by cleansing and polishing their teeth.

A SPOILED CENTENARIAN.—We sometimes flatter ourselves that our efforts will assist our clients to arrive at advanced years, but the following case from the *Daily Telegraph* shows how a promising candidate for centenarian honours was baulked by the same means. “False teeth have been responsible for the death of an old gentleman, of Bois Colombes, outside Paris, who was on the way to become a centenarian. The deceased, M. Messian, was ninety-eight years old, and in good health, considering his age. As he was ascending the staircase leading to his rooms last night, he suddenly felt ill and fainted away. His neighbours hearing him fall on the stairs, went to his rescue, and carried him to his flat, where he lived alone. He had hardly been placed in his bed when he died. The doctor who was called in found that the nonagenarian had been choked by his set of false molars, which became loosened as he fell on the stairs, and lodged in his throat.”

PASTOR AND DENTIST.—A pastor in Sutherland has gained a great reputation as a dentist. He may not be able to always draw a large congregation, but no one denies his ability to draw a tooth. When engaged in his house to house visitations, he is always accompanied by his forceps, the consequence being that he boasts of having taken out two thousand teeth. He has much to answer for.

THE PRESS AND ADVERTISING.—That the crusade against the advertising dentist will receive little or no support from the Press is not to be wondered at, as advertising is the very breath of its nostrils. The *Eastern Morning News*, in a leader on the subject, remarks:—“A good deal of feeling

has been excited by the movement in question, as its opponents allege it has originated with some of the more fashionable members of the profession who aim at securing for the practice of dentistry a higher social position than has hitherto been accorded to it. It would appear doubtful whether the friends of strict etiquette will achieve much by their crusade, for those who gain their livelihood entirely by advertisement will certainly not abandon it to gratify the prejudices of professional purists."

THE BACTERIOLOGY OF BALDNESS.—The microbe which causes baldness has been discovered after patient research by Sabouraud, who by using cultures of the microbe has produced alopecia in the sheep, the guinea-pig and the rabbit. If, as has been often said, pyorrhœa alveolaris is to the teeth what baldness is to the hair, we may expect shortly to have the pyorrhœa microbe discovered, and perhaps then we may discover some specific treatment for this disorder which seems to be much on the increase.

CHLORATE OF POTASH AS A DENTIFRICE.—Dr. Unna, acting on the suggestion of Dr. Miller as to the specific properties of Chlorate of Potash in diseases of the mouth, uses a tooth paste containing fifty per cent of the salt. During the past eight years he has never had occasion to look for a better cleansing agent for the mouth, tonsils, and teeth. He agrees with Miller that the efficacy of the remedy does not solely depend upon its antiseptic value, but that it also possesses marked tonic properties, especially on mercurialized gums. He knows of no other preparation that will remove so quickly and effectually the fœtor of the mouth noticeable on waking in the morning and after meals. It has no detrimental action on the teeth, and he thinks that the daily use of the paste is the best prophylactic against caries of the teeth and affections of the tonsils, including diphtheria.

A QUARTER OF AN OUNCE OF GOLD IN A TOOTH.—It is said that Dr. Sandre of Vienna, once contoured up a molar by using two books of gold each containing an eighth of an ounce. It may rank high as a performance of skill and patience, but the operator would have been kinder to his patient and himself if he had crowned the tooth.

TAKING MODELS FOR EDENTULOUS LOWER CASES.—Dr. Fribley in taking impressions of the lower jaw, in which the ridge is hardly perceptible, uses the following method. He takes the impression in plaster, inserting the tray when the plaster is just solid enough not to drop out of the tray when inverted. He places the tray in position and requests the patient to move the jaw as in mastication, following each movement with the tray. This is done until the plaster is of putty like consistence. After removing the tray there are to be seen in the impression, small grooves, elevations, and depressions corresponding to the muscles, depressions and elevations of the jaw, and when the plate is made it will fit perfectly, and not be displaced during mastication.

CAUSES OF HEADACHE.—At a meeting of the Hunterian Society, Dr. Hingston Fox opened a discussion on headaches. He touched upon the headache due to school pressure in childhood, that due to rheumatism and over exertion in youth, the anæmic headache, headache due to constipation, albuminuria, gout, epilepsy and neuralgia. These only include some of the causes mentioned by Dr. Fox, but any that he happened to omit were soon supplied by the specialists present. Eyes, ears, uric acid, and skin, each had its advocate for a special headache, and if a dentist had been present, he could have informed his audience that neuralgic headaches, due solely to decayed teeth, cause more widely spread suffering than all the rest of the causes put together.

Abstracts of British & Foreign Journals.

CONGENITAL TEETH.

In reporting some cases of congenital teeth not long ago, Dr. J. W. Ballantyne took occasion to point out that the fact that infants are occasionally born with one or more teeth already cut was well known to the ancients. Indeed, as he showed in a paper on the Teratological Records of Chaldea,* instances of the kind are mentioned in the very ancient cuneiform inscriptions found at Nineveh. As showing the meaning which was ascribed to the occurrence, Dr. Ballantyne quotes the following passage from Holland's translation of Pliny's *Natural History*: "Certaine it is also that some children are borne into the world with teeth, as M. Curius, who thereupon was surnamed Dentatus, and Cn. Papyrius Carbo, both of them very great men and right honourable personages. In women the same was counted but an un-luckie thing, and presaged some misfortune, especially in the daies of the K.K. regiment in Rome; for when Valeria was born toothed, the wizards and soothsayers being consulted thereabout, answered out of their learning by way of prophesie. That looke into what citie she was carried to nource, she should be the cause of the ruine and subversion thereof; whereupon had away shee was and conveyed to Suessa Pometia, a citie of that time most flourishing in wealth and riches; and it proved most true in the end, for that citie was destroyed." M. Schurig, in his *Embryologia Historico-Medica*, published in 1732, collected a number of cases recorded by other writers up to that time. Tradition has it that several men famous in history were born with teeth. As instances, Dr. Ballantyne names Richard the Third, Louis the Fourteenth, Richelieu, Mirabeau, and Mazarin. Shakespeare refers in several places to this belief regarding Richard. In *Richard the Third* the Duchess of York says:

"Marry, they say my uncle grew so fast,
That he could gnaw a crust at two hours old;"

* *Teratologia*, 1894, i. p. 134.

In the same play, Queen Margaret refers to Richard as :

"That dog that had his teeth before his eyes."

Richard himself says :

"For I have often heard my mother say
I came into the world with my legs forward;
* * * *

The midwife wonder'd and the women cried
'O Jesus bless us, he is born with teeth!'
And so I was : which plainly signified,
That I should snarl and bite, and play the dog."

Congenital teeth are rare. Of 17,578 infants born in the Paris Maternity between 1858 and 1868, only three had teeth, that is, not much more than 1 in 6,000. Yet Dr. Ballantyne has collected seventy records of cases from literature, and doubtless, as he says, many have escaped notice. In respect of sex, the female shows a slight preponderance, which, if there be any truth in Richard's theory of the significance of congenital teeth, may perhaps be expected to increase with the evolution of the New Woman.

British Medical Journal.

SURGERY OF THE MOUTH.

By G. L. CURTIS, M.D., N.Y.

There is no question that the more cultivated dentists know the surgery of the mouth better than the surgeon who has been only generally trained ; know better also the relations of disorders of the oral cavity with contiguous and distant tracts, and are better prepared to diagnose the cause of many obscure lesions connected with those relations.

I would therefore recommend to the surgical profession, particularly to those who have had no special opportunities for studying the diseases of the mouth, the calling in of a skilful dentist at least for the benefit of his judgment in diagnosis, whenever there is room to suspect oral complications.

Our medical schools will not do their entire duty by their students until they add to their list of teachers dentists of the ability to instruct their students in diseases following affections of the teeth ; and our text-books will be lacking until they give proper attention to oral surgery as viewed from a conservative standpoint.

Dominion Medical Monthly.

SUCCESS IN GOLD FILLING.

By Dr. ASHLEY FAUGHT.

The preparation of cavities in teeth to receive gold does not admit of frail cavity-walls ; does not admit of overhanging walls ; does not admit of rough or irregular edges. I have particularly found that good, substantial walls with nicely polished edges are essential to success. I also advise, in approximal fillings, to cut back far enough to expose the point of junction between the gold and the tooth substance, so as to permit of proper cleansing. In approximal fillings especially secure the point of contact between the two teeth in gold.

Regarding the insertion of gold into such cavities, I stand here as an advocate of the good old-fashioned method of hand-pressure ; the motto ever before me being, that the great essential is not rocky solidity, but adaptation to the walls of the cavity with sufficient condensation to prevent disintegration. Mallets may be rapid, but time is nothing and the result everything. I verily believe that many fillings fail from the effort with mallets to obtain unnecessary solidity. He who has cultivated strength in his fingers with that peculiar motion known to a handworker, and the drop of the wrist, can properly impact gold without mechanical adjuncts which only too frequently comminute the marginal edges of the cavity. Small pieces and small points, with not too much annealing, are the other requisites to success. Use, but be cautious in your use of matrices, and always contour your work.

The proper finishing of fillings I have found to require that the cavity should be filled to a little, a very little, over flush, and never so full as to be excessive, and then a thorough and persistent use of burnishers to the large exclusion, or very cautious use, of stones and files.

My last consideration is not the least in importance, but lies in the hand of the patient. The best work is liable to failure if the patient is careless in cleanliness. Having done all, every effort should be made to impress the need of this great adjunct upon the minds of those to whom the jewels are intrusted.

The Dental Cosmos.

FORMULA FOR ODONTALGIA.

The following remedy for odontalgia pulpitis has been employed with good results by Dr. S. Wotjoff.

R Cocain hydrochlorate, 0.1
Camphor 5.
Chloral hydrate 5.

To this mixture add a few drops of water, thus producing a clear liquid. Saturate a pellet of cotton with the remedy and insert it in the aching tooth and permit it to remain about one day. If the pain still continues renew the treatment and the ache invariably ceases. The author has resorted to this drug in many severe cases and has met with exceedingly satisfactory results.

Translated by Dr. B. J. Cigrand from *Zahnärztliches Wochenblatt*, August, 1896.

OUR LIFE WORK.

By CLYDE PAYNE.

The practice of dentistry is the work of your life. It is as honest, useful and legitimate a branch of human industry as any other on the face of the globe, and no one earns his wants of living more fairly, and both common sense and bodily necessity require that you should try to provide properly for yourself and for those dependent upon your labours for support. This you cannot do unless you have a business system, for upon system depends your professional and financial success.

If people do not pay, you cannot live by your calling, and you will very-soon tire of all work and no pay. If you render bills promptly it teaches people to look for them and to prepare to pay them just as promptly as they do other family expenses. It is often more advisable even to submit to a reduction in a bill for prompt payment, than to let the amount stand over and run the risk of losing it through the

pay-when-you-please system, for while you are waiting some one may fail and others abscond. You should render your bills while they are small and your services are still vividly remembered.

When patients ask you how much their bills are, always reply with courteous promptness and decision, "one dollar," or "ten," or whatever the amount may be, large or small; and if you are careful to avoid prefacing this reply with other words, most people, in the embarrassment of the moment will proceed to pay you without objection, where if you add more words it will weaken your claim in their minds, or impress them with the belief that you have no settled charge and will furnish them with a pretext to show surprise and contend for a reduction. When one does demur at the moment, show your amazement and prepare at once to defend or explain the justice of the charge.

Patients will often ask: "Doctor, when shall I pay you?" or "Shall I pay you now?" A good plan is to answer promptly, "Well, I take money whenever I can get it;" "Short payments make long friends;" "Prompt pay is double pay;" or something to that effect. Never give such answers as "Oh, any time will do," or, "It makes no difference when," or you will soon find it to be very expensive modesty.

Odontographic Journal.

HALLUCINATION AND ANÆSTHETICS.

In the case of *State vs. Perry*, the Supreme Court of Appeals of West Virginia held that expert medical testimony should determine whether or not hallucination, while under the influence of an anæsthetic, was responsible for criminal charges preferred against a physician by a female patient. If the probability of such hallucination is established and the charges rest entirely on uncorroborated testimony of the patient, the jury, it held should acquit the accused.

A DENTIST'S FEE.—A Madras dentist has, it is announced, received a sum of Rs. 14,000 for supplying His Highness the Nizam of Hyderabad with a row of false teeth.

THE DENTAL FILLING.

By JOSEPH HEAD, D.D.S., Philadelphia, Pa.

For the last fifty years dentists have declared that a filling must be water-tight, forgetting that the tooth itself is thoroughly pervious to moisture, and also forgetting that many fillings which admittedly leak keep on preserving the tooth-structure indefinitely. Jack has put in soft foil fillings, under water, that have done good service for years. Elliott's observations concerning the universal leakage of amalgam plugs are verified by the daily experience of each dentist, and yet who will say that in spite of leakage amalgam does not save the teeth well?

Drop a fresh tooth, filled with gutta-percha, into aniline ink, and at the end of five minutes the entire cavity under the filling will be stained.

The oxychloride of zinc and oxyphosphate of zinc are permeable to moisture; nevertheless cement and gutta-percha are indispensable to those operators who would serve the best interests of their patients.

Cohesive gold and tin are claimed by their admirers to be non-leaking materials, but when a tin or cohesive gold filling is first carefully cleansed and then melted, a decided odour of burnt organic material will be perceptible, which would seem to emanate from the interior of the metal. In the light of this fact further proof is necessary before cohesive gold and tin can be said to positively seal the cavity margins. And if they should be proven to absolutely seal such margins, the mere fact that the other materials frequently preserved teeth would be conclusive evidence that leakage of moisture in itself is not a serious objection.

Oxychloride and oxyphosphate of zinc leak bacteria, the proof being as follows: Hollow balls of oxychloride of zinc and hollow balls of oxyphosphate of zinc were thoroughly sterilized, and then dropped in a solution of bouillon that had been inoculated with a decayed tooth. At the end of five days they were opened. The bouillon had filtered through the substance. The bouillon found within was swarming with bacteria.

Gutta-percha was tested as follows: Several old cuspid teeth of dense structure were drilled through from end to end, the pulp-canal being eradicated. With proper precautions these were sterilized and filled at each end with gutta-percha, a small pellet of cotton soaked in sterilized bouillon being left inside. These were subjected to steam heat for an hour, five separate times, an interval of a day elapsing between each heating. They were then placed in tainted bouillon. At the end of five days they were examined, and the cotton soaked by broth was found to contain cocci, diplococci, streptococci, and staphylococci. The reports of these two experiments are given at full length in the June number of the *The International Dental Journal*. The gutta-percha test is not conclusive, as Miller has shown that bacteria may very occasionally penetrate the normal dentinal tubules; but at least the experiment would seem to indicate that gutta-percha could not keep them out, which is the real point at issue.

That valid amalgam fillings at times leak bacteria as well as moisture, no experienced practitioner will deny.

Tin and cohesive gold are the only materials that may exclude bacteria. That they do exclude them is yet to be proved. Soft foil fillings have been picked out from cavities by the explorer in a pulpy, evil smelling state, to all appearances full of bacteria, and yet the dentine beneath has been found firm and sound.

It is a most astonishing fact that soft foil fillings may be soft and mushy without the least harm to the protected cavity; while if cohesive foil fillings are soft or defective on the edge, decay almost invariably sets in. Miller claims that soft foil has a slightly antiseptic action, which is lost in annealing. It might be said that a not too dense filling would be less likely to dangerously expand or contract under the action of cold or hot drinks. But these explanations do not seem sufficient. The questions raised by these facts cannot as yet be satisfactorily answered, and I hope some experiments on this subject, which are now in process, will give more positive light.

In spite of the fact that a useful filling may leak micro-organisms, there should be no pains spared to adapt each plug as accurately as possible. The more perfectly a filling excludes bacteria from a sterilized cavity, the more certain the chances of permanent success.

And after all has been said against filling materials and defective conditions of the saliva, it seems probable that the great majority of our failures arise either from hasty preparation of the cavity or unskillful manipulation.

In my opinion, a gold filling, either of soft or cohesive foil, if it has perfect adaptation to good enamel edges, will preserve the tooth as absolutely as if the original enamel remained dense and undecalcified. A filling at best can only restore the tooth to its original condition of perfection, and if the acid and bacteria, which originally created decay, should attack it again, there is no reason why the tooth substance should not disintegrate a second time. This is an unanswerable excuse, and may convince the patient many times, but if decay recur too often in the same place, the coincidence is most unfortunate for the dentist.

I am well aware from my varied experience in dental meetings, that there are numerous practitioners who always do absolutely perfect work; whose hands never tremble from fatigue at the end of a long day; whose weary eyes never by any possibility overlook small concealed portions of decay that ought to be removed. These practitioners will not need the suggestion I am going to make, because when no fault can exist no precaution is necessary. But to that large and most useful class of dentists who, in spite of a personal element of error, engage to relieve pain, preserve teeth, and make mouths wholesome—to them I would say: After the gold filling, approximal or crown, is inserted to the best of their ability, let them polish it down almost flush with the enamel edges, and then rub in thoroughly a mush of amalgam. When the patient returns, they can polish all the amalgam off and finish the filling, which will look untarnished and resemble any ordinary filling except in one particular. Should decay attack its borders, the conscience of the dentist may be quite clear.

Of course the amalgam that fills up any small fissure will not shrink, while hot or cold drinks may cause the gold to expand or contract from the cavity walls. But objections to gold fillings are now out of date. Gold for upward of fifty years has prevented decay. The teeth can successfully antagonize a small number of bacteria, and it is my opinion and my experience that the edges of a gold filling guarded with amalgam as described, will successfully prohibit the dangerous entrance of micro-organisms.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, April 5, 1897. Mr. John Fairbank, Vice-President, in the chair.

The Secretary read the Minutes of the last meeting, which were confirmed.

On the motion of the President a vote of condolence was passed with the family of the late Mr. Salter. The President remarked that members, who were as old as he was, would remember what a very kind, genial man Mr. Salter was; he was an F.R.S., and had contributed much to dental literature.

Mr. HOPSON, as a Guy's man, endorsed the views expressed by the President, and read a letter from Mr. Clement Lucas, which referred to the esteem in which Mr. Salter had been held by the staff at Guy's Hospital, where he acted as Dental Surgeon for nearly twenty years.

Mr. KENNETH W. GOADBY signed the Obligation Book, and was admitted a member of the Society.

The following gentlemen were elected members of the Society. As resident members:—Russell Barrett, L.R.C.P. Lond., M.R.C.S., L.D.S. Eng., 6, Chandos Street, Cavendish Square, W.; Chas. W. Glassington, M.R.C.S., L.D.S. Edin., 6, Pelham Crescent, South Kensington; Joseph Lewin Payne, L.D.S. Eng., 17, Railway Approach, London Bridge, S.E.

The following gentlemen were proposed as members of the Society. As non-resident members:—E. Beltrami, M.D.; 2, Rue Noailles, Marseilles, France; Alfred Joseph Makepeace, L.D.S. Eng., Hertford Chambers, Hertford Street, Coventry; Rupert Wheatley, L.R.C.P. Lond., M.R.C.S., L.D.S. Eng., 4, Park Place, Torquay.

The LIBRARIAN reported the receipt of the Annual Report of the Smithsonian Institution for 1896, and he also stated that *Kingsley's Oral Deformities* had been added to the Library.

The CURATOR reported that the Society was again very deeply indebted to Mr. Morton Smale, who had, with great

trouble to himself and advantage to the members, obtained a number of specimens of comparative dental pathology which was enabling the Society to make a collection which was perfectly unique. The first was the skull of a bear, which was interesting from the fact that two of the premolars had never erupted, and a considerable amount of tartar was present on the right upper canine. The next specimen was the skull of a wolf, showing the results of death of the pulp and alveolar abscess in the lower animals. In this specimen the two large lower molars and upper premolars had all lost their pulps, alveolar abscesses had supervened, and caused considerable destruction of bone, the pain the animal must have suffered during life must have been very considerable. In addition, the right central and second incisor in the upper jaw had been lost, the right central incisor having had an alveolar abscess connected with it, which had pointed in the nose. The teeth had been lost some time before death, and the sockets had been filled up by a deposit of new bone. The third specimen was the skull of a Macaque monkey, in which the left upper central had had its pulp destroyed and an alveolar abscess had pointed in the nose. The right upper canine had been broken off short so that the pulp in that case had been exposed and an alveolar abscess had also occurred. It was interesting to notice that on the left side in the maxilla, the second premolar had been lost during life, and on the right side the first premolar; both sockets had been filled up by the deposit of new bone. The last specimen was that of a young chimpanzee just about the period of changing dentition. The skull was soft and porous from the animal having suffered from rickets.

CASUAL COMMUNICATIONS.

Mr. A. HOPEWELL SMITH showed a new automatic microtome, the first, he believed, that had been invented by a member of the dental profession. It was invented by M. Choquet of the Dental School of Paris, and was quite a new instrument. It was very compact and consisted of a base with an iron pillar and a movable table on which the razor was fixed. The action was chiefly a vertical movement on the part of the object holder, and a horizontal movement on the part of the razor. The vertical movement reduced the amount of friction almost to *nil*, and the horizontal movement gave a very steady motion to the razor. The microtome screw was at the base of the microtome, and connected to the driving

wheel by an eccentric lever. The instrument would cut paraffin embedded sections varying from 1-80th to 1-400th of a millimetre, about 2,000th to 10,000th of an inch.

Mr. HOWARD MUMMERY thought the microtome shown was a very beautiful machine, and much on the lines of the Minot. In the present instrument the knife moved to the object, but in the Minot the object moved to the knife. The instrument exhibited by Mr. Hopewell Smith would cut large sections, and was therefore much more useful than the Cambridge Rocking Microtome, which only cut very small sections.

Mr. STORER BENNETT suggested that the machine should be adapted by a hinge so that it could turn from a vertical to a horizontal position in order to cut celluloid specimens, his practice being to cut them in a bath of spirit. He would suggest to Mr. Hopewell Smith that by putting a hinge to the base the whole thing might be turned face downwards, and so made available for such work as he had mentioned.

Mr. KENNETH GOADBY asked whether Mr. Storer Bennett always cut celluloid specimens in a bath of spirit, because in the Hume microtome the knife cut on the slant, and unless celluloid specimens were cut with a knife particularly on the slant, they were not properly cut.

Mr. STORER BENNETT said that with the Swift rocking microtome it was possible to vary the position of the knife to a very considerable extent.

Mr. A. HOPEWELL SMITH then read a paper on "The Microscopical Aspect of Certain Lesions Induced by Caries," which is published on page 433.

DISCUSSION.

Mr. MUMMERY said he thought the classification adopted by Mr. Hopewell Smith was a very natural and useful one. The degenerative processes in the pulp seemed to classify themselves under these different forms. The author had spoken of the layer of Weil being involved when caries approached the pulp. He, Mr. Mummery, had noticed the layer of Weil in healthy teeth only. With regard to the fibrillar structure of pulp nodules he agreed with Mr. Hopewell Smith that the fibrillæ were nothing in the nature of tubes like those seen in dentine, but that they were really connective tissue fibres. He thought there was very little

doubt that odontoblasts did not seem to take any part in the formation of these nodular secondary deposits.

Mr. STORER BENNETT said that Mr. Hopewell Smith asked them to take for what they were worth the suggestions that he had made in his paper, and the classification that he had attempted, and he, (Mr. Bennett) for his part felt, as he believed most of the members of the Society felt, that they were worth a great deal, and he thought that nothing but congratulations could be conveyed to Mr. Hopewell Smith for the admirable paper he had read. There was only one remark he would like to make with regard to the earlier part of the paper. The author spoke of the extreme rarity of true bone being found in the pulp chamber. No doubt it was very rare, but he might point out that Mr. Salter described and figured some specimens of true bone formed in the pulp cavity of the teeth. In addition to the specimen described by Mr. Salter, there was another one that Mr. F. J. Bennett had described and figured some years ago in the *Transactions* of the Society, where absorption had taken place in the root canal and a deposit of a new true bone had taken place. There were, therefore, three specimens on record of true bone being found in the pulp cavity of the teeth.

Mr. F. J. BENNETT said Mr. Hopewell Smith deserved the congratulations that he had received. He (Mr. Bennett) fully endorsed all that had been said. If he were over critical he perhaps would have liked the paper to have been less expansive, and to have kept to a few of the subjects. He would like to have seen Mr. Hopewell Smith wrestle with the question a little more about the function of the odontoblast cells. He knew the author held what might be called an extreme view on the subject, at any rate, a view that was not universal, and he should have liked not only an expression of opinion on that subject, but somewhat of a demonstration as to the grounds upon which those opinions had been formed. He did not quite follow Mr. Hopewell Smith's views as to the mode in which the intrinsic calcification masses were formed, the exact method in which the concentric globules were formed in the pulp—What was the exact method in which they grew, and in what particular they differed from those masses of calcified substance which did not present the concentric lamination which Mr. Hopewell Smith had shown? He understood that Mr. Hopewell Smith considered that they had a different origin and a different method of growth. He thought the author had said

with regard to the calcareous masses, that they grew more in a manner resembling intra-membranous ossification. He would like to know if the concentric masses were also supposed to grow in the same way.

Dr. PARE said it was generally considered that calcareous degeneration was one of the remote causes of neuralgia. In his opinion calcareous degeneration was extremely common in teeth quite free from caries. In one section he had seen there was calcareous degeneration in the centre of the pulp of a perfectly sound tooth which had been removed for regulation purposes. Whenever they had a case of neuralgia and could not find the cause, they generally attributed it to some calcareous degeneration of the pulp, whereas calcareous degeneration of the pulp frequently occurred, and there was no sign or apparent cause of its presence at all. Another specimen he had in his possession was a case of what Mr. Hopewell Smith called adventitious dentine. It was a large mass of pure dentine growing into the pulp, and was somewhat pedunculated and showed very well the secondary curves but there was no caries anywhere near it, neither on the root or the neck of the tooth nor on the crown, so that it appeared the adventitious dentine could be formed without any caries whatever, and also that calcareous degeneration was very frequent indeed without any apparent cause for it. In cases of caries, where the decalcification had taken place rapidly and the dentine was quite soft and lifted off in flakes, he had found no adventitious dentine present, and he considered that such cases were due to the decalcification being so rapid that the pulp had not sufficient time to form any new dentine.

Mr. KENNETH W. GOADBY asked Mr. Hopewell Smith whether he found any phagocytes in the cells near the odontoblast in the early stages of caries.

Mr. HOPEWELL SMITH in reply said, with regard to Mr. Mummery's remarks, he did not wish to introduce any new names at all, for he thought they ought to keep to their ordinary dental nomenclature as much as possible; but it seemed to him that the classification as he had given it was, perhaps, a little more clear than what they had been accustomed to. If they restricted the term "adventitious dentine" to dentines produced entirely by caries, that would pave the way to many things. With regard to the basal layer of Weil, that certainly existed in the specimens of which he had been speaking. It seemed to him to be a very common accom-

paniment of hyperæmic conditions of the pulp. Then with regard to fibrillæ he had called that fibrillar dentine. It was a curious thing that in some nodules of calcareous degeneration there were certainly tubes which one could not distinguish from ordinary dentinal tubules, but in that case as they contained no fibrils it was perhaps best not to call the structure fibrillar dentine. He (Mr. Hopewell Smith) certainly thought the early stages of calcareous degeneration of pulp were brought about in the same way that the intramembranous ossification of bone was produced. He could not throw any light on the method of formation of the laminar varieties. He had not come across very many cases of laminar varieties, and he had only seen it in the later stages: but there was no doubt whatever about calcareous degeneration commencing in the form of ossification of connective tissue fibres by means of small cells round their edges. In answer to Mr. Goadby's question about the action of the other cells in the pulp, he had not particularly gone into the question, but certainly the odontoblasts themselves had no phagocytic function. He had not seen any micro-organisms either in the cells themselves or in their nuclei.

The PRESIDENT, in the name of the Society, thanked Mr. Hopewell Smith for his paper, and also the gentlemen who had taken part in the discussion.

The Meeting then adjourned.

Dental News.

HIGH COURT OF JUSTICE. QUEEN'S BENCH DIVISION.

Before Mr. Justice Hawkins and Mr. Justice Wright.

The Queen, v. The General Medical Council.

In this case Mr. Isidore Spero obtained a rule *nisi* for a *mandamus* against the General Medical Council, calling upon them to show cause why they should not place the name of the applicant upon the Dentists' Register. Mr. Muir

Mackenzie showed cause against the rule. Mr. Willis Chitty appeared in support of the rule, and Mr. R. W. Turner held a watching brief for the British Dental Association.

The Dentists' Act, 1878, section 6, provides that three classes of persons shall be entitled to be registered under the Act, viz., (a) "Any person who is a licentiate in dental surgery or dentistry of any of the medical authorities; or (b) is entitled as thereafter mentioned, to be registered as a foreign or colonial dentist; or (c) was at the passing of the Act, *bona fide* engaged in the practice of dentistry or dental surgery, either separately or in conjunction with the practice of medicine, surgery, or pharmacy."

Section 7 provides that a person shall not be registered under sub-section C of section 6, unless he produces or transmits to the registrar before August 1st., 1879, information of his name and address, and a declaration signed by him in the form provided in the schedule of the Act, or "to the like effect."

Section 37 provides that "any person who has been articled as a pupil, and has paid a premium to a dental practitioner entitled to be registered under the Act, in consideration of receiving from such practitioner a complete dental education shall, if his articles expire before January 1st., 1880, be entitled to be registered under the Act as though they had been in *bona fide* practice before the passing of the Act." The applicant was a person whose articles were current in July, 1878, when the Act was passed. His term commenced in April, 1875, and was for three and a half years, thus expiring in October, 1878. He paid £30 premium to a dentist entitled to be registered under the Act, for which he was to receive a complete dental education. He did not apply to be registered before August 1st, 1879, and it was not until 1888, that his application was received. It was refused upon the ground that the applicant failed to make the declaration required by section 9 within the time mentioned—that is to say, before August 1st, 1879.

It was contended in support of the rule that section 7 could not have been intended to apply to persons applying to be registered under section 37, because that would have involved that in some cases pupils would have been entitled to be registered before they were out of their pupilage. It was further pointed out that the form provided in the schedule

was not worded in such a way as to be applicable in the case of persons applying under section 37.

As Mr. Justice Hawkins observed, (prior to his judgment) Mr. Spero had complied with all the requirements of the Act except making the requisite statutory declaration, and, having been guilty of contributory negligence, had only himself to thank that he failed to get registered as a Dentist.

Mr. Justice Hawkins, in discharging the rule, said that the person entitled to be registered under section 37 was entitled to be registered "as though he had been in *bona fide* practice before the passing of the Act." There was no reason, therefore, why such a person should not be under the same obligation to make a declaration under section 7. The objection relating to the wording of the form set out in the schedule was not a good one, because the declaration was to be made in the form provided, "or to the like effect." The form could easily be varied so as to make it suitable for the case of a pupil.

Mr. Justice Wright said that he concurred, but he reserved the point as to obligation of pupils whose articles did not expire until after August 1st, 1879.

THE FORTHCOMING INTERNATIONAL MEDICAL CONGRESS.

It is officially announced that the Czar has consented to become patron of the International Medical Congress to be held next August in Moscow. A programme of a "select conducted tour" to Moscow, including visits to Berlin, Warsaw, St. Petersburg, Stockholm, and Copenhagen, has been prepared by Messrs. Thomas Cook & Son. Dr. Henry S. Lunn, Editor of *Travel*, writes to inform us that he has arranged to send the steamship, *Norse King*, a splendid vessel of 3,254 tons, fitted with electric light and other modern improvements, to St. Petersburg, for the International Medical Congress. She will also visit on the same cruise the northern capitals, Copenhagen, Stockholm, and Christiana. The cost for a twenty-eight days' cruise will be from 25 guineas. Arrangements are also being made at economical rates for the journey from St. Petersburg to Moscow and the stay in Moscow. Various routes have also been mapped out at the request of the English Committee.

British Medical Journal.

ROYAL COLLEGE OF SURGEONS, EDINBURGH.

During the April examinations, the following gentlemen passed the first professional examination for the Licence in Dental Surgery: William James Newman Wood, Dumfries; Archibald McKendrick, Kirkcaldy; William Tweedie, Edinburgh; George Braidwood Wilson, Liverpool; Bernard John Taylor Bennette, Liverpool; John Park Inglis, Edinburgh; George Brewis, Gateshead; James Watt Somerville, Dumbartonshire; John Alexander Cairncross, Edinburgh; Frederick John Blight, Plymouth; James Macleod, Sutherland; George Albert Lloyd, Denbighshire; Alfred Marmion Beamish, South Africa; Charles Ernest Wilkinson, Birkenhead; Thomas Herbert Hillis, British Guiana, and Frank Adye-Curran, Bombay; and the following Candidates passed the final examination, and were admitted L.D.S. Edinburgh:—Ruby Grace Halliday, London; William Alexander Stewart, Perth; John Ainslie Duncan, Cupar-Fife; James Irvine Wilson, Glasgow; Alexander Ballantyne Mackenzie, Inverness; Charles Edward Page, L.R.C.S.E., Edinburgh; Robert William Markham, London; Edwin Robinson, South Shields; David Johnston Cameron, Kincardineshire; William Gardner, Edinburgh; and John Morison Hood, Edinburgh.

FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW.

At the April meetings of the Dental Board the following candidates passed the first dental examination:—

James Bowie, Glasgow; Walter Bruce Hepburn, Glasgow; Alfred George Walby, Belfast.

The following passed the final examination, and were admitted licentiates in dental surgery:—

Thomas Allday, Birmingham; Sydney Richard Excell, Glasgow; Alexander Macgregor, Glasgow; Hugh John Miller, Glasgow; Thomas Taylor, Glasgow.

A DARING DENTIST DEFIES THE WHOLE OF THE BRITISH NAVY.

A desperate conflict between the British Admiralty and a well-organised force of one man has been waged for the past three months in Northumberland-avenue, London.

The Admiralty wants the building known as Craven House for a pay department for the Artillery and Coast Defence branches, and concluded an arrangement with the owners of the property, without, however, counting on the desperate resistance to its wishes which one of the tenants was prepared to offer. As soon as the forces of the Admiralty laid siege the majority of the tenants of the buildings marched out. They all accepted the terms proffered them for their leases, and either moved out, or else signified their willingness to do so as soon as the enemy should desire to land its Blue-jackets. Mr. F. Whit Gould, L.D.S. (England), was made of different stuff. This gentleman had a twenty-one years' lease of the third floor, and, on account of the injury to his business he anticipated from any change of quarters, he declined to move unless the sum of £1,000 was paid him for his lease, which had still seventeen years to run. The estate agent in charge was instructed to offer the dentist £150, which was scornfully refused. Then the owners sent word that hostilities would begin. Mr. Gould was informed that it was all a matter of business; that the owners had a chance of doing better with their property, and that he had best get out if he wanted to save himself trouble. The dentist had no idea what the plan of attack would be, but he decided to stand to his guns, congratulating himself on the fact that at all events the Admiralty could neither get the *Majestic* nor yet a torpedo boat like the *Albatross* up as far as his doorway. He had not long to wait for the commencement of hostilities. The gas on the doctor's landing was cut off. He rigged up some artistic paraffin lamps and for a fortnight did not feel the damage done him. Then letters began to come in from patients who had been left to wait for hours in an ante-room on a lower floor, instead of being conducted to the dentist's reception chambers by the attendants of the premises who were formerly at hand. Still the doctor held out and wrote in scathing tones to the owners. Next the domestics who had been wont to answer the dentist's bell were placed *hors de combat* by the Admiralty's forces, and the housekeeper's assistance was cut off. Mr. Gould still kept up a stout resist-

ance. Then the commanders of the attacking forces held a council of war, with the result that on Thursday measurements of the doctor's hallway were taken, with a view to building a partition that will reduce him to terms in short order. He has made a good fight, and is a gallant dentist, but he looks like going under, even if Mrs. Chant comes to his aid with a staff of nurses.

Western Mail.

A DENTIST AND HIS CHARGES.

Henry Blandy, dentist, of Postern-street, Nottingham, claimed £17 5s. 6d. from Ralph Oakden, manager of the Nottingham and Notts Branch Bank of Newark, for professional services rendered.

Mr. Arthur Barlow defended, and plaintiff conducted his own case.

In the course of his evidence the plaintiff stated that in November, 1895, he was consulted by Mr. Oakden, jun., a sub-lieutenant in the Robin Hoods, as to his teeth. The family had been patients of his for years, and knew well his charges. When he had finished the work in February, 1896, Mr. Oakden, jun., told him to send his bill of charges to his father at Newark. This he did, but the father repudiated any claim.

In answer to Mr. Barlow, the plaintiff said that he knew Oakden, jun., lived in Nottingham during the week, but he went home to Newark each week end. He admitted that he had no contract with the father at all.

Mr. Barlow proceeded to argue that in law this was fatal to the plaintiff's claim.

His Honour was of opinion that there was a case to answer, and the defendant was called, stating that his son was articled to the Nottingham Borough surveyor. He was supplied with sufficient money for his living in Nottingham. He knew that his son had been to Mr. Blandy, and expected to have to pay two or three guineas. He objected to having to pay a bill of £17.

Mr. Barlow reminded the court that the plaintiff had sued the son in the first instance, but his Honour, in giving judgment, said that quite at the outset the bill was sent to the father. It was evident that the father was liable, and there would be a verdict for the plaintiff with costs.

DEATHS UNDER CHLOROFORM.

Dr. John Stewart, of Crosshill, Glasgow, gives the following particulars of a case of death under chloroform during the extraction of teeth:

The patient was a woman aged 38, of fairly good physique, but of a decidedly nervous temperament. On at least three occasions during the past ten years she had slight hæmoptysis of two or three days' duration. There was no evidence of lung affection, and, although the hæmoptysis was regarded as being due to some disturbance of the circulatory system, there were no physical signs of cardiac disease. For a month prior to her decease she suffered severely from toothache and neuralgia, and consulted the dentist, who advised extraction.

She was somewhat anxious about the operation, but on the whole was wonderfully calm and self-possessed, considering her nervous tendency. The chloroform was administered on lint stretched on a wire frame. At the commencement of the administration she exhibited a slight degree of nervousness, and later on struggled slightly. The pulse, which at first was rapid and weak, became slower and stronger as she passed into a state of unconsciousness; in nine minutes from the beginning of the administration the breathing being regular and easy, her colour perfectly good, the pupils well contracted, and the cornea insensitive, the gag was inserted on the left side of the mouth, and the dentist extracted the affected teeth of the right side, which, with the exception of a little difficulty with the root of the upper wisdom, came out quite easily.

The gag was now removed, and an anterior one substituted. Immediately after the gag was placed in position, and before the dentist had time to seize the next tooth properly, and without previous indication that anything was wrong, the breathing ceased, and at the same moment a ghastly pallor spread over her face. The head was immediately lowered, the tongue pulled forward, artificial respiration commenced, and hot fomentations applied to the præcordia. The circulation did not respond to the stimulus, and, in the hope that some reaction would ensue, a subcutaneous injection of ether was given, and nitrite of amyl held to the mouth while the artificial respiration was proceeded with, but there was no result. Thinking it probable that if the windpipe were open

the artificial respiration would be more effectual, a knife was pushed into the trachea, and the wound held open with forceps but all these efforts were unrewarded by any sign of vitality, although they were persevered in for thirty-five minutes. Dr. Stewart adds that in an experience of fully 800 chloroform administrations among which were many alarming occurrences short of death, this case stands unique in the awful suddenness with which the calamity occurred. It is worthy of note that at one time the patient had had nitrous oxide gas administered, and had been so ill afterwards that she determined never to take it again. Unfortunately no details of this circumstance are obtainable.

An enquiry was held on April 17th by the Worcester coroner as to the death of John Beard, aged 54, a gardener of Evesham, who died in the Worcester Infirmary on April 15th. The deceased was admitted to the infirmary to undergo an operation for cancer of the mouth. Chloroform was administered by Mr. L. J. Wilding, M.R.C.S. The operation lasted nearly an hour, and just before its conclusion the deceased died. *Post-mortem* examination showed that there was commencing degeneration of the aorta, which could not be discovered during life. The operation was performed by Mr. T. Bates, who was of opinion that death was due not so much to the administration of chloroform as the length of the operation. A verdict in accordance with the medical evidence was returned. *British Medical Journal.*

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester during the month of APRIL, 1897.

Number of Patients attended	729
Number of Extractions	502
Number of Extractions under Anæsthetics	247
Gold Stoppings	72
Other Stoppings	134
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	155
Gold and Porcelain Crowns	25
Inlays	1
Total	2065

J. STEPHENSON, *House Dental Surgeon.*

REPORT of cases treated in the Dental Department of the North Surrey District School, Anerley, during the year ending MAY 2, 1897.

Extractions	{ Temporary teeth	...	...	632
	{ Permanent	...	..	58
	{ Under Anæsthetics	...	...	15
Fillings	{ Amalgam	...	...	25
	{ Osteo Plastic	...	...	31
	{ Various	...	...	10
Regulation plates	...	...	...	4
Removal of salivary calculus	..	...	...	36
Miscellaneous cases, including dressings, the treatment of alveolar abscess, advice, etc.	...	...	...	81

Total 892

HENRY J. MOXON, B.A., L.D.S., Dentist.

APPOINTMENT.

Mr. Theodore S. Readall, L.D.S., R.C.S., has been elected Hon. Dental Surgeon to the Homeopathic Dispensary, Torquay.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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VOL. XL.

BRITISH TEETH ON THE DOWN GRADE.

By CHARLES FOX, L.D.S.

CAUSE I.

"The idea is that the disturbance or catastrophe called disease—excluding accidents—is not simply to be met by treatment, although that may be necessary and beneficial, but is to be prevented, and that with so much perfection that it shall altogether become extinct, or remain as a mere historical ghost."

SIR BENJAMIN W. RICHARDSON.

In the great sanitarian's model city of Hygieopolis a dental surgery and all its inquisitorial weapons, would be relegated to the museum of antiquities. Caries would figure as a mere historical ghost, for natural selection had taught the youth of that fair region to view with disgust any mate with decaying teeth and unsightly gaps.

Between this Utopian dream and our present state of dental decadence lies a long and toilsome road. To prevent further deterioration is a stiff battle, and our utmost endeavour daily expended in patching up and replacing the inroad of the disturbance or catastrophe called disease.

There used to be a popular belief that sweets were the cause of bad teeth, and our childish appetites were oftentimes checked by warnings dire and dreadful, as to the effects of the seductive caramel or acidulated drop. So many other reasons have however been given publicity of late, that one finds patients losing faith in that sweetmeat bogey. I would lay great stress, however, on the enormous increase in the use of

sugar in the United Kingdom during the last two decades, and without actually bracketting cause and effect, call attention to the fact that the increased consumption of sugar coincides with the deterioration of teeth.

During the first forty years of the century, the rate of consumption was singularly stagnant. At a price of 10d. per lb., folks were content with about 18 lb. per head annually. In 1870 we find the duty reduced, and 47 lbs. indulged in. This rapidly rose to 54 lbs. per head in 1876, and in the last twenty years it has steadily increased, until the enormous weight of nearly 100 lbs. of sugar is used on an average by every man, woman, and child in the United Kingdom. Huge confectionery manufactories such as Fry's and Cadbury's chocolate works, employing thousands of hands each, are the growth of our own times, the outcome to a large extent of cheap sugar. Fruit, entering as it rightly should, more freely into the diet of the people, is deluged with sugar when preserved, and even bread is very often rendered tempting to the present taste of the race with sugar. The many millions of extra pounds of tea the Chancellor of the Exchequer rejoices in announcing every year, require extra sugar to sweeten the cheering draught.

I recently examined the teeth of several union children, tabulated their condition, and compared them with an equal number of middle class patients of the same age. It was astonishing the extent to which decay had advanced in the mouths that had daily access to cakes, jam, and candy, and passed the little paupers by on the other side. The unionists had sweets perhaps twice a year, on treat days, and their great mugs of tea and milk were but scantily sugared. The work-house fare was plain in the extreme, but its dental results were very fine. Dentist and toothbrush, plus excess of sugar, were no match for nature and simple fare.

One of several confectioners in a little town clustering

around one of our great public schools, said that his takings were £20 less per week during the holidays. £20 a week by one shop in extra goodies to boys who already have plenty of the sweets of life! No wonder the advantages of an admirable situation and plenty of outdoor sports are lost, and that these picked representatives of the classes possess a large percentage of faulty teeth. One of these schoolboy gourmands who required much dental care every three months, and in whose mouth one's most conscientious stoppings seemed always undermined by fresh ravages went into the navy. For three years he was cruising in the Mediterranean. There being few chances to add to the plain tack of H.M.S., these three years were less fruitful in profit to the dentist than any preceding three months. Several patches of arrested decay seemed to demonstrate that the altered condition of the secretions conquered the tendency to caries very soon after the confectioner was left behind. Yet in many ways his schoolboy environment was superior. His rooms were better ventilated, his outdoor exercise well nigh as great, his studies no more irksome, and his medical and dental supervision far greater. But the boy's stomach was tormented by an excess of sugar and the oral cavity directly and indirectly vitiated by acidity.

Many rheumatic and diabetic patients are now ordered Saccharine instead of sugar, and if our young friends will have their food and drink sweet, something may be done by the aid of Burroughs & Welcome, or Allen & Hanbury's neat little preparations.

If I were required to name a list of the causes of dental deterioration in civilized lands, I should without the slightest hesitation write the *excessive use of sugar* in large letters at the head. Whether in America or this country, in Australia or in France, where sugar is most largely used, there in direct ratio to the amount per head, is the melancholy cry

raised, "Why are the children's teeth so poor?" All dentists who are of the same opinion, should impress on their patients and the general public this fact; and in bettering the dental chances of the people they will raise the standard of general health, for medical authorities are harping on the same string just now, and shewing injury to other portions of the alimentary tract by an over-sweetened diet.

PHOTO-MICROGRAPHY.*

By Mr. W. H. MUST.

Gentlemen,—In bringing before you a scientific subject like this, I intend to treat it in as practical a manner as possible, and to regard it entirely from a student's point of view, showing that every student is capable of making photo-micrographs of his histological specimens, with comparative ease, and at a very small outlay.

In the short time at our disposal, it would be impossible to go into all the details connected with the subject, which can be read up in a book, like Mr. Hopewell Smith's on Dental Microscopy, a treatise which has been of the utmost help to me, not only in photo-micrography, but Dental Histology.

In order to make the subject more interesting, I intend to give a demonstration, rather than attempt to read a long paper, but before doing so, I will describe what I consider a student's camera, and the way to use it.

The camera before you, I made by getting a second-hand half plate camera without a lens, removing the short bellows and replacing it with one having an extension of thirty-six inches; the object of having such a long extension, is to get magnification.

* Read before the Students' Society, National Dental Hospital.

The lens end of the camera is screwed on to the fore part of the base-board, while the ground glass screen and bellows move backwards and forwards, and can be fixed at any point by means of a screw at the base of the screen.

A brass rod by which focussing can be done, runs along the side of the baseboard, and is attached by means of a rubber ring, to the fine adjustment of the microscope. There is really no need of this, because when using low powers, the bellows are not extended very far, and you can easily turn the fine adjustment with your hand, and focus the picture on the screen; even when using an immersion lens and the bellows are extended, by placing a looking-glass opposite the screen, the image of the specimen is reflected in it, and can be focussed. On the projecting board in front of the camera rests the lamp, condenser, and microscope, the latter having its legs let into the wood to keep it steady. A camera like this costs about twenty-five shillings; I mention this because people are under the impression that photo-micrography is a very expensive hobby.

To take a micrograph, bend the draw-tube of the microscope till it is horizontal, adapt a piece of cardboard or rubber washer to the tube, so that it fits close to the orifice for the lens, and excludes all light from the interior of the apparatus. Place the lamp opposite and about ten inches away from the substage condenser, remove the mirror, and, looking through the microscope, focus the edge of the flame, moving the lamp about till the edge is right in the centre of the field, then remove the eye-piece and line the inside of the drawtube with black paper, this is to prevent a "flare" spot.

Place the bull's-eye condenser with its convex side towards the microscope, between the substage condenser and the lamp, its distance from the latter being within its own focal length. This is a very important point, for if you place it further away than its focal length, there is a marked loss of

light. Shut the diaphragm, leaving only a very small aperture, and by carefully moving the bull's-eye condenser concentrate the light through it, look at the screen, and see if the lighting is uniform all over the field, if it is not, move the condenser, or it may be necessary to turn the wick of the lamp a little.

Too much stress cannot be laid on the illumination of the object and centralization of the condenser; when you get a nice bright field, mark the position of the lamp on the board also its height, for a future occasion.

Now place the specimen on the stage and draw the bellows of the camera out till the light just covers the whole screen, by turning the fine adjustment, focus the image till it is nice and sharp; time can be saved by tilting the microscope up, finding the place you want to photograph, focussing it and then getting the microscope into position again.

Put the double back containing the sensitive plates in place of the screen, interpose a piece of cardboard between the diaphragm and the lamp, draw out the shutter and by removing the cardboard, expose the plate; the time of the exposure varies with the amount of light and the objective used, each one must find out the time for himself. A good way is to expose a part of the plate, say for ten seconds, then draw the shutter out a little more and expose that part for the same time, and so on until the whole plate is exposed, develop the plate and see which part has had the right exposure. Keep a record of all the exposures and the result, and in a very short while one can make certain of the time.

Always use the cardboard to shut off the light before sliding in the shutter, and when a plate is being exposed if there is any vibration caused by a carriage passing, or by people walking about the house, shut off the light by means of the cardboard, removing it when all is quiet; the least vibration

will spoil the sharpness of the negative, so it is always best to use the ground floor.

The iris diaphragm must be used carefully, there is no rule for it, simply open and shut it till you get the best definition. I have found it better to have less light with a longer exposure, than have a bright field and give a short exposure. An ordinary microscopical lamp burning paraffin oil is quite good enough; if a little camphor is put in the oil the light is rendered more light and active.

Specimens that are counter-stained or deeply stained may require screens of coloured glass, placed between the illuminant and the specimen, the colour of the glass being the complement of the colour of the specimen. Violet and blue rays are more chemically active than the red and yellow. A very good glass to use is Lovibond's, it is of a peacock blue colour and does for most specimens. After this point it is ordinary photography; the plates I use are Isochromatic, and the developer Hydroquinone and Eikonogen, the latter seems to bring out detail which is very essential while Hydroquinone gives density. Pyro I never use as it stains the fingers. Ilford's P.O.P. (white) will give very good results, it is also easy to work. In conclusion I would say use the simplest methods as they yield the best results.

ERRORS IN SPEECH AMONG DENTISTS.—The editor of the *Ohio Dental Journal* rises to protest against the loose way into which many dentists have fallen in speaking and writing on professional subjects. He instances such errors as saying alveolus when we mean alveolar process, fissure instead of groove or sulcus, nitrate of amyl for nitrite of amyl, ulcer instead of abscess, bacilli instead of bacteria, ptomaines instead of toxines, and the indiscriminate use of the terms antiseptic and disinfectant.

DIAGNOSIS AND TREATMENT OF EPULIS.

By Dr. EDOUARD FRITEAU, of Paris.

Translated by WILLIAM RUSHTON, L.D.S., Eng.

Formerly the word Epulis was used to designate all the products of new formation—other than abscess—which projected from the gum. Now-a-days we reserve the name epulis for certain tumours which springing from the alveolar process appear subsequently upon the gums.

There is no intention in this article of making a complete study of these tumours. Two points are of the most importance to those engaged in daily practice, namely diagnosis and treatment. As regards the latter subject, I hope to show that following their nature and evolution, epulis always necessitates an operation larger and more complete than that with which many practitioners content themselves even at the present time.

Firstly, Diagnosis. I pass by the period during which the tumour is hidden in the alveolar margin, as also the stage when it produces a feeling of tension and uneasiness in the jaw, and even the loss of the neighbouring teeth. At this period the patients do not come to consult us, and I must not forget that I am dealing with what concerns us in daily practice.

When the patient presents on the gum a swelling, red, sessile, or pedunculated, with a complete or incomplete dental armature, what diagnostic signs have to we conclude that it is an epulis? What is the nature of this swelling?

Two questions arise at once. Is it the product of inflammation, or is it a tumour?

(1) With what products of inflammation may it be confounded?

(a) With an alveolar abscess. In this condition the swelling is fluctuating, there is pulsating pain, and it is generally accompanied by dental caries or periostitis, the usual forerunners of alveolar abscess. If the mucous membrane has become thin and yellow from the contained pus, the diagnosis is still more easy, and if by a puncture, the pus is allowed to escape, there can be no hesitation.

(b) Hypertrophy of the gum formed by the growth of the fibrous elements of the mucous membrane. This hypertrophy manifests itself by a swelling, circumscribed, rosy, smooth, often pedunculated, constituting a polypus of the gum. It is not of large size. The history of the affection admits of no error, these hypertrophies are of an inflammatory nature, and are the result of all gingivitis.

Secondly, what are the various tumours which project from the gum?

(a) An erectile tumour, angioma. This is soft, violet coloured, bleeds easily, increases in volume during exertion, compressible, sometimes reduceable. Besides, an angioma is congenital, or at least, if the patient has not had the tumour from birth, the gum has always presented a deep wine-coloured stain.

(b) Epithelioma. This appears in elderly subjects, develops rapidly, and soon assumes a flattened cauliflower appearance, fungous, bleeding, oozing a sanious fœtid matter, &c., there is loosening of the teeth, which fall out. In addition, the tendency to invade other tissues and the rapid enlargement of the glands, suffice to establish the diagnosis.

(c) An odontome, odontoplastic, or embryoplastic. Odontomes have a bony consistence, hinder the eruption of neighbouring teeth, invade the alveolar border, and tend to enlarge both sides of the gum.

I arrive thus by a process of elimination at the epulis. I have not spoken of cysts, dentigerous, unilocular, hydatid, etc.,

which may be encountered on the gums, for the epulis is a solid tumour which cannot be confounded with any but tumours of an analogous consistence, and I am not able now to pass in review the whole of the pathology of the gums.

Let us take a case of epulis. A young person of from 15 to 25 years presents himself. He has on the gum a small excrescence, smooth, round, pedunculated or not, adherent to the bone, of hard consistence the size varying from that of a pea to that of a cherry, causing discomfort rather than pain. What should be done? Three methods of treatment present themselves; which shall I choose?

The oldest of these methods is bad. It consists of tying the base of the epulis and excising it above the ligature. There is no bleeding or discomfort. But this facility of execution is, we think, the sole argument possessed by those practitioners—considerable in number—who still persist in using it. Pathological anatomy and clinical experience demonstrate that this incomplete operation is dangerous. Without mentioning the numerous cases of recurrence, we base our condemnation on the case of a young woman of 25, who, six months after this operation by ligature of an epulis on the right superior gum, was the subject of a sarcomatous recurrence, which invaded the right side of the face, and for which no operation could be attempted.

The second method, also much in vogue, consists in cauterising, usually by the thermo-cautery, all the tumour and its base of implantation in the gum. Certain practitioners also, with good reason, continue the application of the cautery to the bone of the alveolus. This is an improvement on the method of those who are content with cauterising the point of implantation on the mucous membrane. These latter leave intact the pedicle, and recurrence is possible. I do not hesitate to condemn this mode of procedure.

The third method is the only good one, for it alone rests

on scientific data, nature, and the evolution of the epulis. After having shown of what this method consists, I shall enumerate the reasons which lead us to make a partial resection of the alveolar process.

Having removed carious teeth and tartar, the mouth is rendered aseptic by mouth-washes of chlorinated or carbolized water 1 in 100. There is no need of a general anæsthetic, two or three injections of a one per cent. solution of cocaine are sufficient to eliminate all pain.

It must be understood that we must never hesitate to extract one or two teeth, and if we find an epulis growing in an interdental space we must commence by extracting such teeth. In practice we often have this point cleared up for us, as the patient having experienced pain in the jaw has already had the tooth or teeth extracted.

Five minutes after the cocaine injections, an incision is made round the point of implantation of the tumour on the gum, lesser or greater depending upon whether the epulis is pedunculated or sessile. The incision must be down to the bone. The epulis is then removed. Compression with sterilised wool is sufficient to control bleeding; if this does not succeed, we must use the thermo-cautery heated to a dull red. Never manipulate the bone before the soft parts have ceased bleeding. We can then see the point where the intra-osseous pedicle of the epulis emerged from the bone. We then resect, whether by cutting pincers or Legouest's gouge, or a gouge and mallet, all the portion of the alveolar margin which contains the pedicle. The bony tissue bleeds, but compression arrests hæmorrhage, or an application of iodoform and virgin wax in equal parts may be plastered on. This resection ought to be large; we only are safe if we take away the point whence the epulis originated. During the following days the patient uses antiseptic washes freely, and in ten to fifteen days after, the wound is healed.

Such in brief is the best method. Those who do not employ it because it leaves a large gap in the alveolar process, or because it deprives the patient of one or two teeth, have a grave task to reply to the teachings of clinical experience and pathological anatomy.

All writers agree in recognising that the usual form of the epulis is sarcomatous. Sometimes it is round-celled, sometimes spindle-celled, sometimes myeloid. Whatever its variety, it is of a malignant nature, and this malignity ought to guide the surgeon in spite of the benign appearance which their slow growth imparts to them. We often, too, find in these tumours the epithelial cells which Malassez and Albaran recognised as dental epithelial *débris*. The presence of these epithelial cells would seem to make the prognosis still more grave if we recall the observation of Heath concerning a case of epitheliomatous recurrence.

In some cases it is true, the tumour appears to be of a fibroid nature. But, as the complete examination of the tumour cannot be made before attempting the operation, and as a partial examination cannot tell whether the whole tumour is free from malignant elements, whether sarcomatous or epitheliomatous, it seems to us to be better to do too much rather than not enough. It is preferable to do a thorough extirpation as in the case of malignant tumours, since pathological anatomy teaches us that the usual form of epulis is sarcomatous. By its origin it necessitates a partial resection of the alveolar border. It does not enter into the scope of this article to pass in review all the opinions regarding the implantation of epulis. I simply quote this phrase which occurs in all classical treatises, "The origin of growth is not in the gum but in the alveolar borders of the jaws."

It matters little to us in daily practice whether the origin of growth is in the septum between two neighbouring teeth as Dolbeau and Nelaton affirm, or in the alveolo-dental peri-

osteum as Virchow and Magitot state, or in the osseous plasma as is the opinion of Cornil and Ranvier. The conclusion is the same, a tumour—often sarcomatous—is implanted in the alveolar border; a radical treatment necessitates the removal of this border. Lastly, the evolution of the epulis freely justifies the operation aforesaid. If on the one hand the slowness of growth, the absence of glandular enlargement and disturbance of general health appear to indicate that the epulis ranks among benign tumours, we must remember the numerous examples of sarcomatous and epitheliomatous recurrence which have been published. All writers are agreed that these recurrences are rather continuations of an affection incompletely destroyed, and they all insist on the necessity of an operation outside the limits of the neoplasm.

The mode of treatment which we choose appears to respond to all these indications. The resection of the alveolar border is then the only rational treatment. The simple extirpation of the gingival portion of the tumour is most reprehensible.

PORCELAIN INLAY WORK.

Dr. W. A. Coston, Ft. Scott, Kas., placed a porcelain inlay in the buccal surface of a bicuspid so perfectly that it was almost invisible when completed, the new features of the process being to mount a broken piece of porcelain tooth (preferably English) upon a metal stem by means of stick shellac. The stem must fit into the socket of a Porte polisher, which is attached to the hand-piece of the engine; the porcelain is held in contact with a corundum slab or wheel and ground to a perfect cylinder. A variety of sizes can be made in this way. When the cavity in the tooth is made, which must be round, a suitable porcelain cylinder is selected and cemented into place; when the cement is sufficiently crystallized, the little metallic stem is broken away at the point of the shellac attachment and the porcelain stoned down and polished.

From report in Western Joarnal.

British Journal of Dental Science.

LONDON, JUNE 1, 1897.

RECENT LEGAL CASES.

As will be seen by the decision of Mr. Justice Hawkins in the case of the Queen v. the General Medical Council, published in our last issue, we are again indebted to this eminent jurist for expounding the law in a clear and emphatic manner. The case was one in which a Mr. Isidore Spero sought to compel the General Medical Council to place him on the Register. Mr. Spero had gone through a pupilage of three and a half years, for which he had paid a dentist thirty pounds. His articles expired in October, 1878, but for some reason or other he did not apply to be registered by making the statutory declaration required by section 9 of the Act, within the allotted time, namely before August 1st, 1879. He, as Mr. Justice Hawkins said, had complied with all the requirements of the Act, except making the required declaration, and has only himself to blame for his foolish negligence in failing to get registered.

It may seem very hard to some, that a person who has finished the curriculum accepted by the law as it then stood, should be debarred from the privileges of registration. But it must be remembered that ample time and fair notice was given to all whom it might concern, and as a matter of fact, the Council used its discretion in many cases for a considerable period after the statutory time had passed. In 1891, however, the Council practically decided that anyone seeking registration should be compelled to go through the regular curriculum of study. The decision is an important one when it is borne in mind that a number of men in a somewhat similar position to that which Mr. Spero occupies,

have formed themselves into an Association to secure if possible, by a decision in the Courts, a registration to which their education does not entitle them at the present day, though it might have done so some twenty years back. The world is moving, and our profession is certainly moving with it, and those who do not take time by the forelock must be inevitably left behind. An interesting point in the affair is the evident appreciation of the value of registration and of the difficulties that attend the unregistered dental practitioner. Our Act is much more stringent than either the Medical or the Veterinary Surgeons' Act, and as the Council is going to have under consideration certain proposals for future proceedings in penal cases, and as the Committee appointed to enquire into such cases is expected to meet at least four times a year, with power to the President to summon special meetings, we may be sure that its vigilance is not on the wane.

The judges and magistracy, too, throughout the Country are becoming alive to the fact that these Acts cannot be set lightly aside or treated in a jesting manner. We are accustomed to eccentric proceedings upon the part of the "great unpaid," but when a learned judge of the eminence and experience of Judge Waddy, Q.C., in the County Court at Sheffield, expresses sympathy with an unqualified practitioner of Medicine, we can only express surprise if not indignation. When we think of the danger to the health of the public from unqualified practice in medicine and surgery, we consider that any remarks from the Bench should be in severe censure of such conduct. A chemist was summoned at Sheffield under the Apothecaries' Act for unqualified practice, and was fined £20. In sentencing the chemist, Judge Waddy is reported as saying, "He must make it clear that he was convinced that the defendant had done nothing underhand. He had been trying to act properly, but he had nevertheless been acting illegally. It might seem hard under the circumstances, remembering how grateful many persons had been for what defendant had done for them,

that he should have to find a verdict against the defendant, but the law laid it down that unqualified men must not do these things."

We wonder what the learned Judge would have said if it had been a case of unqualified legal practice instead of medical. We do not think that his sympathies would have been quite so warm. Such expressions of opinion from the Bench are in the first place absolutely uncalled for,—the Judge is there simply to administer the law—and in the second place they are calculated to do a tremendous amount of mischief by arousing sympathy for a breaker of the law, and so encouraging others to do the same. We must, however, in fairness to Judge Waddy,—while condemning his sympathy with this unqualified practitioner—quote his opinion on the Medical and allied Acts.

"There are some people," he said, "who regard these Acts with respect to medicine and dentists and chemists with a certain degree of resentment. I think those Acts are amongst the most useful we have on the Statute-book. They legitimately and properly, amongst uneducated and unscrupulous men, prevent them from playing with the health and happiness of her Majesty's lieges. Any Act which does that is a most beneficial and salutary Act, and one that I will do all I can to support."

We are glad the Judge is going to support the law of the land; as a matter of fact he has no option in the case.

IDENTIFIED BY THE DENTIST.—The body of the Duchesse d'Alencon seems to have been identified, after the awful fire at the Paris Charity Bazaar, by her dentist. He first declared that a certain body was that of the Duchesse, but upon her doctor putting several questions to him, he wavered and had doubts about it. Half an hour later he identified another body as that of her Royal Highness, which her husband confirmed by some articles of jewellery on the body.

THE PRESS AND DENTAL ADVICE.—The ladies' column in the various papers is frequently embellished with advice concerning the teeth, often good but sometimes amusing. One paper in "Teeth Don'ts" says:—"Don't have a dentist use his foot engine to remove tartar without first trying the end of a match-stick wet and dipped in powdered chalk. With rubbing and perseverance this will almost always prove successful, and the first method, if resorted to too often, is injurious." Another paper recommends for the same deposit, "muriatic acid or spirit of salt," and innocently remarks, "there are very few incrustations which will resist this treatment." We can readily believe it, and would add that there are very few teeth which would resist it also. Another paper recommends "lovely woman" to use a dentifrice composed of "quinine, seven *drachms*, powder of rhatany, three drachms, chlorate of potash, three drachms." We should like to see "lovely woman's" expression after using this bitter compound, even if she could induce any chemist to mix it for her.

DEATH OF DR. MAGITOT.—Only a short time ago we had to chronicle the untimely death of the foremost leader among French dentists, Paul Dubois. The news now reaches us of the decease of Dr. Magitot who, though holding himself aloof from French dentists, has done more for dental pathology than any of his countrymen. He was one of the foundation members of the Anthropological Society and was subsequently one of its Presidents. In 1888 he was elected member of the Academy of Medicine. He was the founder of the Société de Stomatologie and was every year elected its President. His scientific labours obtained for him the honour of the rank of Chevalier of the Legion of Honour. He was the author of many valuable works on Dental caries, anomalies of the Dental system and on the Dental Follicle, besides numerous papers. His death at the age of 63 deprives dental science of a vigorous and original worker whose loss is regretted by dentists throughout the world.

THE X RAYS AND FOREIGN BODIES IN THE AIR PASSAGES.—At a meeting of the Paris Academy of Medicine, M. Berger showed a skiagraph of a pin present in the pharynx just above the hyoid bone of a child of 2 years old. By aid of this means the pin was readily removed. In a case at the Nottingham Children's Hospital, a child was said to have swallowed a piece of slate pencil and had every symptom of a foreign body in the air passage. The X Rays discovered nothing, but eventually nearly a month later, during a violent attack of coughing, a piece of slate pencil $\frac{3}{4}$ inch long was ejected. The remarks of most interest in the case by Dr. Marshall are, firstly, that slate is found to transmit the rays and so could not be seen, but composition slate pencil is well defined. The second point is that he disagrees with authorities, such as Gray and Erichsen, who state that the right bronchus is the one in which foreign bodies usually lodge. All the cases he has seen have been in connection with the left. He therefore thinks that the passage into the left bronchus is easier than is generally supposed, and that the statement usually made requires correction.

USE AND ABUSE OF THE TOOTHPICK.—We consider that the toothpick made of proper material and judiciously used is a great aid to dental hygiene. It should be made from a crow-quill and whittled fine enough to pass between the necks of the teeth without injuring the gums. Wooden or metal toothpicks are clumsy and inefficient and ought not to be used. On the other hand, there is such a thing as a "toothpick habit" which consists in constantly playing about the teeth and gums with a toothpick. This may result in irritation and recession of the gums with its corresponding inconveniences and discomfort.

THE STOMACH DURING SLEEP—Dr. Schule tells us that from examination of the contents of the stomach obtained in sleep, evidence is forthcoming that acidity is greater

during this period and motility lessened. Persons with digestive trouble, especially those suffering from hyperacidity should not sleep immediately after eating. This also seems to us to be a further argument, if one were needed, in favour of cleansing the teeth before retiring to rest.

THE FELLOWSHIP OF THE ROYAL COLLEGE OF SURGEONS.—At the recent examination for the "First Fellowship," there were 113 candidates, and of these only 33 passed. This Examination is usually one of the most stringent, but most will agree that a high standard should be maintained in the competition for the world-renowned Diploma. We are glad to notice that two of the successful candidates are gentlemen who already hold the L.D.S. There are 46 entries for the Examination in the Final.

THE QUEEN V. THE GENERAL MEDICAL COUNCIL.—We understand that an appeal from the recent decision has been entered, and is likely to be heard at an early date. Sir Richard Quain made reference to this matter in his address to the General Medical Council.

FOREIGN BODIES IN THE THROAT.

The difficulty of removing fish bones and similar obstructions impacted at the lower end of esophagus is well known, and various mechanical measures and appliances have been invented to deal with the difficulty. One of the most simple, however, and, as reported, one of the most effectual, is to administer to the patient a pint of milk, and forty minutes afterward an emetic of sulphate of zinc. The fluid easily passes the obstruction, and is, of course, rapidly coagulated in the stomach into a more or less solid mass, which, on being ejected, forces the obstruction before it and so effects its removal.

Am. Druggist.

Abstracts of British & Foreign Journals.

A CLINICAL LECTURE ON A CASE OF HYPERTROPHY OF THE GUMS.

Delivered at University College Hospital.

By CHRISTOPHER HEATH, F.R.C.S.,
Holme Professor of Clinical Surgery.

I have had recently in my wards a remarkable and somewhat uncommon case of hypertrophy of the gums, on which I propose to make a few remarks. The patient was a young man of 26. The hypertrophy of the upper lip and the fulness of the cheeks were the most prominent features when the mouth was closed, but upon opening it the remarkable condition of the gums was at once visible, and the open mouth reminded one of the mouth of a hippopotamus or rhinoceros on a small scale.

The history was that the enlargement of the gums was first noticed four years ago, when the patient went to the Middlesex Hospital and was admitted under the late Mr. Hulke. I am enabled by the kindness of Mr. Storer Bennett to show you two casts which he took at that time, and which show comparatively slight hypertrophy of the gums and no displacement of the teeth. Mr. Hulke cut away the hypertrophied gums of both jaws, and the patient left the hospital relieved. Three months afterwards he noticed that the growth had recommenced, and though it had steadily made progress for the last three years, he has had no further advice for it.

On admission here the external deformity was well marked, and on opening the mouth the gums of both jaws were seen to be enormously hypertrophied, and most of the teeth to be loosened or displaced. The palate looked at first like a cleft palate, but this was due to the hypertrophied gum on each side covering the palate nearly to the median line, where a small interval was left. This condition I have met with before, and I show you a cast of the mouth of a young lady who consulted me ten years ago, in whom a similar condition existed.

As the parts are evidently very vascular, and as I knew by previous experience of similar cases that the bleeding would be free, I took the precaution of having the patient in the recumbent position, with his head dependent over the end of the operating table. I then rapidly extracted all the loose teeth of the upper jaw, leaving only the two canines, which were firm, and cut away with the scissors the hypertrophied gum down to the alveolus, the edge of which I removed with bone forceps. The bleeding was free, and especially from the folds which enveloped the palate, but was stopped partly by the use of Paquelin's cautery, and partly by plugging the sockets of the teeth.

The patient made a good recovery, and a fortnight later I performed a similar operation on the lower jaw, removing all the loose teeth except the canines and bicuspid, and clearing away freely the hypertrophied gums. The patient's condition now, two months after the last operation, is very satisfactory, the gums being in a healthy condition, and there being nothing abnormal beyond a little looseness of the mucous membrane of the lips.

A microscopical examination of the parts removed, by Mr. Drew, showed that the mucous membrane covering the growth was healthy, the bulk of it being composed of delicate bundles of wavy fibrous tissue, which interlaced. Between the bundles were numerous cells, in some places forming large clusters. Numerous vessels were scattered through the growth.

Hypertrophy of the gums is a by no means common affection. The first case recorded was, I believe, by Salter, the case occurring at St. George's Hospital in 1859, under Mr. Pollock, in a girl aged 8. Salter speaks of it as a congenital affection, but this, I think, is a mistake, for the affection, though occurring in children, has never, so far as I know, been noticed at birth.

Just thirty years ago, I saw a case in this hospital under Mr. Erichsen, in a child of $2\frac{1}{2}$ years, in whom the affection had shown itself at the age of 7 months, when the teeth began to appear. Mr. Erichsen removed the exuberant growth freely, and cauterised the cut surfaces, but a permanent cure was not brought about, for, when seven years of age, the child was brought before the Royal Medical and Chirurgical Society by the late Dr. John Murray, to illustrate a paper on Three Peculiar Cases of Molluscum Fibrosum in Children of One Family. Mr. Erichsen's patient was

the eldest of the three, and her portrait, (which was shown) bears out the description given of the hypertrophied condition of the gums. The other children, aged 4 and 2, had similar conditions of the gums.

Ten years later I had a similar case in this hospital in a girl of $4\frac{1}{2}$ years, who was one of five otherwise healthy children. The swelling of the gums had been noticed for two years, and when she was admitted the gums were enormously hypertrophied, as is shown in the casts taken at the time. Under chloroform I removed each hypertrophied gum and alveolar border in one piece, which I have had preserved in the museum, and she made a good recovery. About the same time I had a case in private in the person of a young man aged 26, in whom the hypertrophy affected only one side of the lower jaw, extending from the right wisdom to the left canine tooth. The affection had been noticed from early childhood, and gave no pain. Here I removed the affected alveolus with bone forceps, and a complete recovery ensued, which I know to be permanent, as I happen to have heard from the patient quite recently.

It is remarkable that in most of the cases of children affected by hypertrophy of the gums some want of mental development was noticed, but certainly in the two young men upon whom I have operated no such deficiency was to be observed.

A remarkable instance of the disease, also occurring in an adult, was recorded by Mr. MacGillivray, Surgeon to the Bendigo Hospital in Australia. The patient, a woman aged 29, seemed to have suffered from the affection in both jaws soon after birth. At the age of 10 portions of the gum were cut away, and several teeth extracted, and she had herself in later life cut away portions of the projecting gum with a razor. All these operations gave rise to severe hæmorrhage. The enormous growth shown in the drawing seemed to have originated mainly from the palatal portion of the gums, the labial surface being comparatively sound. Mr. MacGillivray removed the hypertrophied gums and alveoli with perfect success.

A condition of outgrowth from the gum, due to the irritation of tartar or of artificial teeth, somewhat resembling hypertrophy of the gums, but much less vascular, is known as polypus of the gums; and it happens that I had a remarkable instance of this last week. You will remember an old blind woman who was sent to me with a large fleshy mass

projecting from the upper alveolus, which I removed at once by tearing it from its attachment with the finger, the resulting hæmorrhage being slight. We found that it had sprung from the upper alveolus, in which the teeth were broken and encrusted with tartar, and it is evident that this fleshy mass was nothing more than a local hypertrophy of the gum, the result of irritation. This must not be confounded with the true fibrous epulis which springs from the periosteum of the alveolus, nor again with the vascular myeloid growth which springs from the interior of the alveolus, and forms a maroon-coloured tumour—badly called a myeloid epulis—of which we have recently had an example in a young girl aged 17.

British Medical Journal.

TO CAP, OR NOT TO CAP?

In reply to the query "What would you do supposing a tooth has ached slightly, and whilst excavating with the dam in position, the pulp is found slightly exposed so that it bleeds a little, but appears healthy?" Dr. Jack replies,—Should cap in every such case. As soon as the bleeding ceases, which should be quickly in the case of a healthy pulp, I fill the cavity with a plug of cotton filled with an aqueous solution of Hydronaphthol 1 to 300, for the purpose of effecting disinfection. This is allowed to remain for a few moments, while the capping materials are being made ready. The cavity is then carefully dried, the least compression being avoided. The point of exposure should then be touched with carbolic acid—20 per cent. carbolic acid to 10 per cent. alcohol. The cap I prefer to be of platinum, which should be of a size to cover well beyond the area of exposure. These caps are punched out of platinum plate No. 30; pounding giving the concavity of form. The selected cap is filled to convexity with a paste composed of oxide of zinc mixed with equal parts of carbolic acid and oil of cloves, to a consistency which will allow it to maintain the convexity, and yet it must be so yielding that it will flow out on the sides of the cap as it is put in place, without making pressure upon the pulp. In placing the cap over the pulp it should be laid to catch first at one edge and then carefully laid down, when some of the parts should flow out laterally. The assurance should be had that the cap is against the

dentine. It would be well to state that in excavating the cavity all carious matter, in my opinion, should be removed ; and this should be done without wounding the pulp. My practice is to fill the cavity in such a case at once, as the longer it remains open the greater is the danger of infection and of consequent inflation. My fillings are usually non-conductive, or are made so. My experience on pulp capping has been very extensive, and for many years. I have very frequently performed the described operation and have opened the cases at periods of from two years to fifteen years, finding the pulp living and in healthy condition. It is out of my power to give percentage of success in capping healthy pulps. I have not kept that careful tabulation of cases which would enable me to give ratios of success. In simple cases, like the kind in question, the conditions of general health being favourable, and there not having been previous pain, I would naturally expect successful results. I am, from my experience in this class of cases, forced to state that no condition would induce me to devitalize at the outset. Neither youth nor age appears to qualify the result. The interfering conditions are those of low systemic tone, and generally the lymphatic temperament is unfavourable. There is also stability in persons of this temperament to changes of pulp tissue which have been slowly going on during the period of exposure, this class of persons suffering less from acute pain than others; and on the other hand being less responsive to treatment. Finally, it should be stated that in all cases of attempted conventional treatment of the pulp, careful observation must be made of the previous history of the case, to learn whether it may not have been the origin of subjective disturbances.

Dr. Engel in reply to the same question says, "The best mode of procedure, nine times out of ten, is to carefully expose and extirpate the pulp mass with the aid of obtundents, etc., if practical, at once ; syringe thoroughly and freely with plain water, or listerine and water, until the bleeding ceases entirely ; then use twists and tufts of clean bibulous paper freshly made, to dry canal ; hot air and root dryer. The root canal of all lower teeth is then filled with soft water and listerine, half and half, then drop in it a pinch of impression plaster and mix in the root canal with a fine probe, until all air is displaced ; add more plaster, push into the cavity gently a pellet of bibulous paper or cotton ; as soon as plaster is set, remove cotton, trim away surplus of

plaster and proceed with filling, to finish all in one sitting. Where the pulp is too painful to permit this treatment at once, apply a painless arsenical paste—arsenic, cocaine, morphine, one part of each; mix with collodion and carbolic acid to make a paste. As a rule, postpone for one week and proceed as before. Your query seems to me a paradox; you say, ‘note, this query refers to healthy pulps;’ then again, ‘if success is not warranted, why cap such diseased pulps?’ An aching pulp is an irritated and inflamed congested pulp; it may be all that and not ache; it is no longer in a healthy condition and may become gangrenous in spite of the most judicious treatment. A healthy almost exposed pulp, that had never ached, may have become exposed by accident, the pulp being out of anatomical proportion to the tooth in general; it may bleed a little, too, yet this kind of healthy pulps I cap, fill and finish at once; no infection having taken place, success is assured. In regard to fully exposed infected pulps, such that slightly suppurate while under treatment preparatory to capping, I have had positive success in a few cases, over a period of ten years, and can show a case; yet I say it is not practical in every-day practice. I did not get beyond the experimental stage in capping in twenty years experience. I like the idea of capping very much, but have not succeeded in making it practical under the circumstances mentioned.”

Items of Interest.

“TIC DOULOUREUX,” FACIAL NEURALGIA AND MIGRAINE.

Gilles de la Tourette (*Sem. Med.*, June 24th, 1896) describes some typical cases. (1) Tic douloureux and neuralgia. From a therapeutic point of view it is most important to distinguish two classes of facial neuralgia; the first transitory and usually due to cold and peripheral irritation, the second refractory and perhaps incurable. First form: The pain during attacks is less intense, but is seldom entirely absent between them. The onset is sudden, then there is an acme and a decline. Second: Tic douloureux is completely paroxysmal, pain being entirely absent in intervals; its maximum intensity is reached quickly, and it ceases as

suddenly as it came, the whole attack being of short duration. There may be ten to one hundred attacks in the day, which are often brought on by physiological acts, such as blowing the nose, laughing, mastication, etc., or come on spontaneously. The patients compress the painful spot, and the face is contorted. Secondary vasomotor symptoms are injection of the eye, cedema of eyelids, discharge from one nostril, etc. If the lingual nerve is affected the mouth fills with a copious secretion. Herpes along the nerve is common. Most often the neuralgia lasts some time (weeks or months), and then vanishes completely for a period. However as age advances, these intervals tend to become shorter and the painful periods longer until the disease is permanent. A hysterical form can be distinguished from the true by the irregular occurrence of the attacks, perhaps one a day and then no more for some time, by the actual duration being longer, by the usual presence of an aura, and by terminating frequently with hysterical convulsions, which latter are never provoked by true tic, though hysteria and tic may co-exist. Hysterical neuralgia is curable by suggestive treatment.

Treatment : The first form of neuralgia is always benefited by analgesics (antipyrin, penacetin, hydrobromate or valerianate of quinine); the second, or true tic, is quite uninfluenced by them. The only drug which can be relied on in the latter is opium in large doses. The author gives it in pills containing 2 centigrammes of the thebiac extract of the French pharmacopœia, made freshly and not too hard. Three a day are given at first, and the effect being carefully watched one pill is added every other day until the desired effect is produced. Trousseau gave in one case 14 and 15 g. a day. This dose is continued for a few days, and then diminished by one pill every other day. Prognosis : The attacks cured for a time almost always recur, and intolerance of opium is usually more marked during a second than in the first course. Still it is the best drug unless syphilis is present, when antisyphilitic treatment is indicated.

(2) Migraine differs radically from trigeminal neuralgia ; the two may coexist in the same person and be quite distinguishable. The treatment of severe cases, accompanied by aphasia, etc., used by the author succeeds where antipyrin and even opium fail. Bromides are given as follows : Starting with 2 g. a day for a week, the daily dose is raised by 1 g. every week, and after a time reduced progressively by the same amount, when it is again increased.

Up to 7 g. a day may be tolerated. By this means migraine of years' standing may be completely cured, but the treatment must be absolutely continuous, and may extend over more than a year. Thus it is not suitable for slight cases, owing to the inconveniences attendant upon a long course of bromides, and is useless during the attack. As an aid to treatment alcohol is forbidden. The treatment is the same as for epilepsy, and the author considers migraine to be a neurosis.

British Medical Journal.

THE INDISCRIMINATE USE OF COCAINE.

The topical use of cocaine is attended with a degree of danger at all times. Serious consequences more frequently follow its use in the deep urethra, nares, or the gums, than when injected into the body or at the extremities. At no time is a solution of high percentage necessary, and the percentage should always be known. Many dentists use cocaine in a very reckless manner, and take no consideration of dosage whatever. They, as a rule, take no account of its constitutional effect, only thinking of its local action. Three cases of cocaine poisoning having come under our observation within the past five months in the service of two prominent dentists prompts the note of warning here given. In one case, on enquiry, the percentage was not known—possibly ten or twenty, he said. He just took some crystals and added some water, and injected a few drops into the upper gum over a canine tooth; poisonous symptoms were noticeable in less than three minutes; the collapse was severe, and only by energetic measures, freely used, was the patient's life saved. In both of the other cases ten per cent. solution was used, but the degree of poisoning was not alarming in one instance, while in the other it was exceedingly so. A very prominent dentist in the city told us that he frequently applies the pure crystal to the exposed nerve. We feel justified in calling attention to this very dangerous method of using a powerful poison. None of the active alkaloids should be used except in a solution of known strength, and then not in any indefinite quantity.

Editorial Canadian Practitioner.

AMONG THE CONDEMNED.

AN IMPRESSION.

A long, low-ceilinged, dark room, barely furnished, and what furniture there is of that heavy, old-fashioned, clumsy type that repels and depresses. A long table covered with a dingy red cloth and a few papers and books—a copy of *Punch*, dated March 1890; a copy of *The Graphic* of 1886; an hotel guide; a venerable, dog-eared *Bradshaw*; and a child's picture-book—a sad picture-book, meant for those little pessimistic children of whom we read in stories—children from whom the light of life seems to vanish at birth, and to whom Death and Angels afford the most absorbing interest. A long row of dingy, dull, depressed, dark-clothed human beings at the table, some talking in hoarse whispers, others endeavouring to find amusement in the venerable papers or in unravelling the tangled skein of *Bradshaw*; all nervous, trembling of fingers, and casting constant, quick, anxious glances at the door.

It is a piteous sight to watch, and even I who, with that abominable copy of *Punch* in front of me, sit with beating heart and aching head, can realise the sadness of it all. I can enter into each of those dreary individuals' feelings who sit there so patiently waiting the dread summons in their heavy, gloomy clothes, in that dull, dark, stuffy room. On my right are a mother and her child; the latter sitting bolt upright, with wide, staring eyes, quite still save for the constant twitching of her little, white, nervous hands. The mother, too, seems tainted with this all-pervading nervousness, for I notice that the hands that turn over the pages of that unhappy picture-book tremble. She seems absorbed in contemplation. Doubtless she is thinking of her little darling beside her, so patient, so quiet, so white of face!

On my left is an old man. He is reading nothing; but sits crossing and uncrossing his legs, and constantly wiping and adjusting his gold-rimmed spectacles. An old soldier this, I should say, one who has been under fire and has not turned away his face at the ghastly sights of the battlefield. Yet now he looks as if at any moment he might take up his hat and rush from the room—that awful room with its sickening breakfasty smell and its dingy aspect. But he stays there, his old wrinkled and furrowed face growing paler and paler as the clock ticks slowly on.

Opposite to me are a newly-married couple. She dressed in black suitable to the occasion and in striking contrast to the deathly pallor of her expectant face. He also in black, paying her but little attention, staring blankly out of the window at the carriages and cabs that rattle by. Thrice accursed room! The Goddess of Love is driven from the door, and even the little Cupid pictured on the dirty ceiling looks sad and sick of heart, while the feathers of his arrows droop damply in their quiver.

A barrel-organ stations itself outside the door and plays a jangling tune that irritates us all save one young man, who smiles—a sickly smile—at his companion, and whispers audibly, “That’s ‘Oh, let it be soon!’” A remark which makes us, one and all, involuntarily shudder and become absorbed in our literature. But the barrel-organ soon moves off: there is no kind heart in this house with ready copper-throwing hand; no bright child’s cry of “Let me give him a penny, Mummy,” to give joy to the Italian’s heart. And, as the music goes away, someone says, “Thank God!” Never was prayer to Heaven more fervently echoed!

We have been waiting half an hour by the clock, a clock whose hands seemed to move more slowly than ever moved hands before. As it strikes the half-hour, jarringly, we all glance at it. Who will be the next? And how much longer has that unfortunate to wait?

There is a sound of shuffling footsteps in the hall; a door closes; a whistle is blown loudly; then a door bangs again; footsteps shuffle once more in the hall; a voice speaks.

The door of the room is opened. A short, dark-whiskered, dreary menial approaches. He comes towards me; he bends down; he speaks.

Great Heaven! The Dentist is ready for me!

Vanity Fair.

THE ROYAL ACADEMY.

The Royal Academy is this year rich in medical portraits, chief among which is the admirable presentation portrait of Lord Lister, P.R.S., by W. W. Ouless, R.A. This portrait is not only an excellent likeness, but is also an eminently characteristic representation of the great surgeon, so that Mr. Ouless has fulfilled Mrs. Browning’s dictum, “paint a body

well and by implication you paint the soul." The thoughtful face is supported, in pensive attitude, on the folded hand, and the expression is one of meditation on some great problem of scientific surgery. There are none of the paraphernalia of office added in the attempt to give effect, but the quiet black professional dress, the greeny russets of the background, the well-worn green leather of the library chair, and the rich, sombre bindings of a few scientific books, make together a harmonious whole in which the chief interest centres, as it should, round the noble head. Fine, however, as is the painting from an artistic point of view, the picture will be valued in years to come as an admirable portrait of the great surgeon, whose adaptation of the principles of science to the practice of surgery has saved more lives than Napoleon destroyed. Lord Lister's portrait hangs in the large room on the line, and will doubtless be as much appreciated by the public as by the profession. The bust of Sir Richard Quain, the work of Thomas Brock, R.A., will also attract attention. Never were the well-known features of the distinguished and genial President of the General Medical Council represented in a more life-like manner. The portrait is particularly good when the face is seen three-quarter. Among other portraits the most interesting is that of Dr. Samuel Wilks, President of the Royal College of Physicians, by Percy Bigland. The fine head of Dr. Wilks lends itself to pictorial portraiture. The artist has represented him in his presidential robes of black and gold, sitting and in the act of signing a paper, and he has succeeded in producing not only an interesting picture but an excellent portrait. We cannot give equal praise to the portrait of Sir William Mac Cormac by H. Harris Brown. Here also, the artist has represented the President in his robes of office, which are in this case of a brilliant scarlet. The management of the mass of intense colour is not happy, and has resulted in giving a look of pallor and ill-health to the features of Sir William, who does not look quite at ease in his magnificent attire. The portrait of Mr. Henry Power, by Lucy Power, is interesting, and a faithful representation of the well-known ophthalmic surgeon.

In the sculpture room will also be found the design for the Huxley Memorial Medal, by S. Ruth Canton. On one side is a portrait of the great biologist, and on the other a group representing Truth and Art crowning Science. The Gold Medal, cast and chased for annual presentation at St. Bartholomew's Hospital, in memory of the late Sir William Law-

rence, Bart., by Alfred Gilbert, R.A., is a beautiful decorative piece of work, conceived in the old Florentine spirit. Two small medallion portraits in plaster of Professor Ayrton and Dr. Tilden, by Margaret M. Giles, are very dainty pieces of work.

Generally, it may be added, this year's exhibition is one of a very high standard of merit, and of great artistic value and interest.

British Medical Journal.

ETHICS.

By S. B. BROWN, D.D.S.

A paramount question which should be discussed before the humblest and highest dental society is, "Why do Dentists Extract Teeth?"

Why do those who have faithfully passed through the curriculum of a dental college, and perchance made sacrifices of time and money, oftentimes drawing upon the resources of family and friends to acquire a full knowledge of the diseases which human teeth are heir to, and treatment for their restoration. Why do they stultify the good name of dentistry by an assault to annihilate these priceless organs with forceps and at the same time casting away that dearly acquired education for their preservation and any reputation which their profession is presumed to have as conservators.

These methods are the sandy foundations upon which to build the practice of the "advertising dentist." Printer's ink, gas bag, and hypodermic needle are his chief material accessories, with these he decoys the ignorant, innocent and unwary to his selfish, conscienceless course.

By these unethical and misleading methods the advertiser invades a community, and aims to prejudice public opinion against regularly educated, reputable and established dentists as extortioners and incompetents, and by his guerilla methods is willing to traffic in the good name of a profession from whose store-house of love he has drawn all that gives him a name which he now dishonours by his treachery.

He is willing to influence citizens to the belief that other dentists who are united and mindful of professional courtesy

are a combination for the purpose of extorting unjustifiable fees—that dentistry is a trade and not a profession—that dental skill is over-paid and does not deserve the reward attending conscientious labour for years to establish, and to which he would be cordially invited to share if he would add his mite to maintain that confidence and respect due to an honourable profession in which he claims a brotherhood, and more to render a duty to humanity by a higher standard of skill in demonstrating professional truths—to educate and encourage the people to seek for their benefit the grand possibilities of modern dentistry.

The fallacious defence of the quack is that the established and regularly accepted plan for securing a practice is too slow, that he is too enterprising to wait, or his pecuniary necessities forbid it.

Thus he is willing to lower the standard of benefits to all others for his supposed individual gain, to subordinate every other high purpose to his selfish end.

The next vain effort to vindicate a weak and wicked course is that the people will not accept treatment necessary for the conservation of diseased teeth, that they demand unconditional extraction; if one does not comply another will, therefore it is justifiable to secure the profit of this illadvised procedure.

“The people demand it.” Do we admit that we should take our professional orders from those who are totally ignorant of the first principles in what many years have been spent by us in acquiring to become competent authority in regard to the proper treatment? Is it to count as nothing? Is this diploma won only for a license to conduct a dental slaughterhouse?

Shall our patients dominate our course of treatment against our knowledge of right?

Dental Register.

SAVING A BADLY DECAYED UPPER BICUSPID.—In these teeth, less dentine is left in proportion to size of tooth and cavity than in any other tooth and the inner wall is very liable to break away from the filling. To prevent this cut down the inner cusp till it is free from occlusion.

WHAT DIFFICULTIES DOES THE DENTIST ENCOUNTER FROM THE PRESENCE OF SECONDARY FORMATIONS.

By E. F. DAY, L.D.S.

By the term "secondary formations" I have taken to mean :

1. Exostosis or enlargement of the cementum.
2. The formation of secondary dentine.
8. Calcareous degeneration of the pulp and formation of pulp stones.

The difficulties that a dentist would encounter from the presence of either of the above may be classified for the purpose of description under two heads, viz :

- (a) Difficulty of Diagnosis.
- (b) Difficulty in Treatment.

1. *Exostosis*.—The fact that we are unable to see the root of the tooth in this diseased condition, and that the symptoms are very vague, renders the diagnosis very troublesome. I am not aware of any diagnostic symptom which is characteristic of the disease or of any of the secondary formations, so that the inconvenience may vary from the dull growing pain of an acute periostitic to the neuralgic pains following an exposed pulp.

Patients present themselves about the middle age, frequently with good sets of teeth, and complain of neuralgic pain around the teeth, face and head, which they cannot locate. An examination will be made for caries, possibly there may be none. The question then arises, what is the cause of the neuralgia? And we must proceed to exclude all of the causes, such as a chill, the retarded eruption of third molars or of any of the, may be, missing teeth, cysts, pregnancy and the like, but even by excluding these causes we cannot certainly say what the trouble is. Should the patient be suffering from a rheumatic or gouty diathesis we may suspect exostosis. The treatment is almost as unsatisfactory as the foregoing diagnosis and may be curative or radical. The radical treatment consists of extraction of the tooth or teeth, and in obstinate cases is the only course to insure cure. As curative measures the application of counter irritants and the internal use of iodide of potassium is said to be good. As the deposit on

the roots of teeth frequently enlarges the end of the root so much that it is larger than the crown, giving the tooth a dumbbell appearance, we find it very difficult to extract in these cases, and may have to resort to a large fissure by which we divide the alveolus after loosening up the tooth.

2. *Secondary Dentine*.—Since this secondary formation is of advantage to the individual as well as frequently necessary to the life of the pulp, we favour its progress as much as possible.

It sometimes happens that after a septum of secondary dentine has been formed the pulp dies, leaving this septum perfectly hard. The tooth presents itself for filling, and on excavating we find that there is no exposure of the pulp, and the walls are not softened above. In the earnest pursuit of our work we may have overlooked the fact that the tooth is not sensitive as many teeth we note, and we may have the mortification of filling over a dead pulp. This may not be a difficulty to all of us, but as I have had the misfortune to fill a tooth such as I have described, I thought it might be interesting to mention it. We all know that the application of a hot instrument or a piece of ice will clear up that difficulty.

3. And lastly, the calcareous degeneration of the pulp and formation of pulp stones.

When these conditions occur in old teeth it is a normal process, and since its diagnosis and treatment is of little value it requires no further comment.

But when pulp stones or nodules are formed in healthy teeth and at the same time we get an exposed pulp, and which we decide to kill in order to treat it, then the difficulty begins.

We apply the arsenic and send the patient away for a day or two. Then we attempt to open up the pulp chamber (say a molar) and after drilling for some time in that direction, and no pulp chamber appearing (and as it was the first tooth of the kind I had treated) I began to think it was the queerest tooth I'd seen. On blowing the debris away I could see a small opening into the pulp chamber, or what was left of it, as I was now in the centre of the tooth, and excepting this opening, all was calcified. I inserted a stiff bristle and by a lucky movement succeeded in dislodging the remaining part of the nodule which was blocking the way. Here I found the pulp so sensitive that I had to make another application

of arsenic. On opening the tooth up again found other nodules in the canals. It seemed to be the delight of the pulp to get behind these nodules and defy my efforts to kill or extract it, simply asserting itself whenever my instrument tried to grasp it. The tooth was eventually treated and fixed, in spite of the difficulties a dentist has to encounter due to the pressure of secondary formations.

Dental Register.

ANÆSTHETISATION OF CHILDREN.

A method of anæsthetising children devised by Mr. G. Rowell, Senior Anæsthetist to Guy's Hospital, was described by him to the Harveian Society at its last meeting. Seeing that chloroform often causes dangerous symptoms in children, though they respond well to treatment, and death if it occurs is almost invariably caused by an overdose, he was led to question whether there was a better anæsthetic for routine use in children. Passing by gas and air, and gas and oxygen, both obviously unsuitable for use by practitioners generally, Mr Rowell was led to employ ether, of which Mr. Braine had already indicated the use for the anæsthetisation of children. But ether had either to be given very slowly, so that it takes eight or ten minutes to render the child ready for operation, or, if a larger quantity was used, straining, coughing, struggling, or some other unpleasant reflex was excited. Happily Mr. Rowell has found it possible to obviate the production of these troublesome symptoms. But, first, the depth of anæsthesia attained at any moment in children, especially under chloroform, is occasionally difficult to decide; under ether, however, there is one test of good surgical anæsthesia in the young which is certain and invariable—that is, the absence of swallowing, coughing, straining, held respiration, or any alteration in the rhythm of respiration in response to a strong ether vapour suddenly applied. (Upon the recognition of this fact, Mr. Rowell's method of anæsthetisation is based.) Consequently, when a child is once so deeply narcotised as to have lost these reflexes, it is an easy matter to keep it at this uniform depth by taking away the vapour for a few breaths and then reapplying it until this stage is again reached. To attain this condition is, in Mr. Rowell's opinion, best done by giving A.C.E. gradually upon a towel or Skinner's inhaler

for about a minute and a half, beginning with a drop at a time. When the child at the end of this period can freely breathe the vapour proceeding from a completely wetted single layer of flannel on the inhaler, a stronger vapour of A.C.E. is given from a sponge in a Rendle's mask, and when this is freely respired a drachm or two of pure ether is added. When the reflexes excited by the ether vapour are almost or quite gone the first sponge is removed, and a fresh sponge containing 2 or 3 drachms of ether only is rapidly substituted for it, and from this time the administration is continued with strong ether vapour, the mask being applied only when shown to be necessary by the presence of the reflexes referred to. The following advantages are claimed for this method: (1) the time required to produce good anæsthesia is rarely more than four minutes; (2) the guides to the anæsthetist are clear; (3) flaccidity and freedom from movement during the operation are complete; (4) the after-effects bear comparison with those after any other method; and (5) the method is safe. Even should an inexperienced administrator encounter stoppage of respiration from an overdose, the only accident to be reckoned with, all that is needed is a little compression of the chest, the circulation not being prejudicially affected as in the case of such an event under chloroform. The method is recommended especially for children under 5 or 6, and for any child with obstruction in the upper air channels. By children above 5 or 6 the combination of gas and ether is so well borne that nothing need replace it. But all practitioners do not give gas and ether, and those who do not are recommended to employ the above simple method of etherisation for children of all ages and conditions.

British Medical Journal.

WHAT IS INDICATED BY THE TONGUE.—A white tongue, according to Dr. Ardhill, indicates febrile disturbance; a brown, moist tongue, indigestion; a brown, dry tongue, depression, blood poisoning, typhoid fever: a red moist tongue, inflammatory fever; a red, glazed tongue, general fever, loss of digestion; a tremulous, moist and flabby tongue, feebleness, nervousness; a glazed tongue with blue appearance, tertiary syphilis.

Pop. Science News.

ACCIDENTAL ADMINISTRATION OF A LARGE DOSE OF SILVER NITRATE: RECOVERY.

As nitrate of silver when applied to a tooth has been known to descend down the throat, the following experience reported in the *British Medical Journal* will be of interest.

Dr. Arthur Drury (Halifax) read the following account of a personal experience. The incident occurred on March 21st, 1896. During the whole of the week previous he had been in bed with a temperature remaining at 101° or 102° , and resisting various medicinal attempts at reduction. There were also symptoms of tonsillitis. On the date mentioned it was decided to apply nitrate of silver locally. A new pencil was used, the weight of which would be about 25 grains. This was put in a crayon holder such as was supplied for the purpose in many surgical cases, and which did not happen to be in good order. Almost immediately the whole pencil slipped down the œsophagus. His feelings were absolutely indescribable. There was localised pain in the gastric region, and a strong conviction that death must soon follow. Immediately a frothy foam welled up in large quantities, forcing its way through the mouth and nostrils, staining handkerchiefs and the bed linen. This foam would be due to the chemical decomposition of the salt by the action of hydrochloric acid present in the stomach, hydrogen gas being freely given off. There was an irresistible feeling that the pencil was lying impacted in the gullet. This seemed such a terrible source of danger that he insisted—against the wishes of those present—on having a probang passed. Mustard was given in large quantities and free vomiting induced. Some time after common salt was given. A very careful search was made for any of the pencil which might have remained undissolved, all the vomited matter being examined without any of the solid caustic being found. Collapse and great exhaustion followed. For some days after a milk diet was carefully followed. Everything, especially if sweetened, had a very salty taste. There was no further vomiting, but very pronounced constipation. The temperature at once became subnormal, and all the symptoms of the previous week's illness disappeared. During the next fortnight there was well marked desquamation of the whole of the skin, though to the best of his knowledge there had been no exposure to scarlet fever, and certainly no rash, and further a child not

three years of age was in and about the same room during the whole of the time without developing any symptoms. During the twelve months since the accident there had been many indications of dyspepsia ; some of these symptoms were present in a much less aggravated form prior to this. The pencil was composed of 4 per cent. nitrate of potash and the rest nitrate of silver. There was very little food or fluid present in the stomach at the time of administration. The salt being extremely unstable, the chemical changes involved were accompanied by most active and destructive irritation. It was therefore a matter of surprise and interest that in this instance the recovery was so good. As, however, the cases in which so large a dose had been accidentally administered included so many instances in which the death of the patient had resulted, a strong word of caution against the use of such a powerful corrosive poison in the solid form in throat affections was not cut of place.

WOMEN AS VETERINARY SURGEONS.

An action is likely to be called in the Scotch Courts, asking that decree be pronounced ordaining the Royal College of Veterinary Surgeons to proceed to the examination of a female candidate for the diploma of that College, and if she be found duly qualified, to grant her that diploma, and to confer on her all the rights and privileges thereto accruing. The facts are these : A female candidate has registered herself as a medical student, and has gone through the necessary course at the New Veterinary College. She presents herself for examination, and the Royal College of Veterinary Surgeons decline to examine her, on the ground that it is contrary to use and wont to examine a woman or to grant her a qualification in veterinary medicine and surgery. To this the authorities of the New College reply that forty-four years are too short a term to constitute a ground for a plea of usage, or use and wont, as is the Scotch phrase. And further, the laws speak of a "student," not "he" or "she." The Council of the Royal College thus far has declined to give way, though, as we understand, by a small majority.

British Medical Journal.

CUT OUT THE FISSURES.

I have made it a practice for years, to always cut out a fissure if it comes in contact with a proximal cavity. If the bicuspid or molar is decayed on the proximal surface, and this cavity extends into the fissure of the tooth or sulcus, no matter how sound that may appear, I take the burr or drill and cut it out and fill it the entire length of the fissure in all its details or bifurcations ; because where the fissure makes a large depression we bring the filling in there and we cannot finish or fill that corner right where that fissure comes down, satisfactorily, and make it water tight, or prevent recurrence of decay.

B. C. Maercklin, Review.

OPENING THE ANTRUM.

By M. C. SMITH, D.D.S., M D., Lynn, Mass.

In opening the antrum, the most important thing is first to find out if the opening from the antrum to the anterior nasal fossa be open. If the trouble in the antrum is first discovered by the rhinologist, it is generally from complications in the nose and the natural opening is closed ; if discovered by the dentist, it is generally from dental irritation and the natural opening is not interfered with.

Find the dead tooth that is the source of irritation ; open into the pulp chamber, and wash out with plenty of warm water. Select the largest root canal, and if it is not big enough enlarge clear into the antrum, and with a hypodermic or a Dunn syringe wash out the antrum. I prefer H_2O_2 full strength. Tip your patient well forward so that the drainage from the antrum will run out the nose. Have a little hot brandy or hypodermic handy, for your patient may collapse, not from pain but from the odour.

If a tooth has to be extracted, any tooth from a cuspid to a third molar, a sharp bur in the right direction will soon open the antrum. Pack the opening with iodoform gauze, as nothing else keeps as sweet in the mouth for so long a time.

If the opening into the nose is closed, then a larger opening into the antrum is necessary.

Dental Digest.

PREPARATION OF CAVITY MARGINS.

By Dr. E. B. WEEKS, Litchfield, Minn.

The time was, but now we hope is passed for ever, when there was no definite instruction given as to the lines on which a cavity margin should be formed or how much or how little the enamel walls should be cut away with reference to precluding future recurrence of decay.

Remove decay. Cut away frail walls. Bevel the margins. These were the few but elastic rules for the preparation of all cavities, and as ascertained from the writers in the journals, from speakers at our society meetings, and by observation of fillings coming under our notice, these rules meant very different things to different operators. A cavity cleansed of decay by one operator would not be considered thoroughly excavated by another.

One would leave enamel walls for retention of the filling while another would know that the retention of such frail walls would be the ruin of any filling within a very short space of time.

Enamel margins were considered bevelled by some, while others would go much further. But thanks to Dr. Black and others we have now a system of definite laws as to the preparation of cavity margins and enamel margins, how much the walls should be cut away, how much the enamel should be bevelled.

It is necessary to the stability of a filling that these laws be both understood and carried out in every cut of the chisel. It is also my observation that these laws are not carried out in the every-day practice of the rank and file of the profession. The first requirement is a knowledge of the minute anatomy of the teeth, and of the lines of cleavage of enamel. Then the first rule should be: Cut away all enamel margins not supported by sound dentine. The wish to keep a frail wall of enamel for a retaining wall must give way to the fact that it will not stand, therefore cut it away.

Second. If the line of the margin of the cavity brings you close to the line of demarcation between the lobes of the teeth, cut through to, or beyond such line, for it will prove a source of weakness to your filling if you don't, because of the greater liability of the enamel to split along these lines.

Third. Cut away the margins of the cavity clear beyond the lines of contact on the teeth. Let nothing deter you from doing this, for if the line of union between the filling and the enamel is at or within the line of contact, recurrence of decay is almost certain.

Again, carry the cavity margins cut to such a place on the surface of the tooth that the fillings may be smoothly polished and beautifully formed. Do not cut into a developmental groove and then stop short at the end of it.

Do not cut next to a groove or to another cavity and stop there, leaving a thin division of enamel between them, but cut it away.

Having formed the cavity margins on the lines indicated, it remains to bevel the enamel margins. The enamel should be shaved or planed down with sharp chisels to that line on which it splits or cleaves off most readily, then with enamel trimmers the margins of this enamel should be bevelled beyond this line so that the ends of the enamel rods may be protected by the filling. It is impossible in a paper like this to demonstrate just what this bevel should be at each particular part of the tooth or cavity. It must be learned from close observation of the lines on which the enamel cleaves at each different portion of the tooth, and by following the teachings of Dr. Black, whose writings and admirable illustrations are open to each one of us, a heritage of vast value to us all.

Dr. Ottolengui, in his book on "Methods of Filling Teeth," after rehearsing what has been accomplished in the past, says "Something more will be required of the dentist of the future. He will be asked to abandon the assertion, 'Madam, your tooth has decayed around my filling, but the filling is all right.'" Undoubtedly there are teeth in which it is impossible to prevent recurrence of decay but it is equally true that in too many times when "the teeth decay around the filling," the filling is not "all right."

Dental Review.

TO ALLAY INFLAMMATION OF THE PULP.—Cleanse the cavity and wash out with warm water. Over the exposure invert a concave disk containing pulverized thymol. If pain is very severe place a drop of chloroform after adjusting the disk. Fill with temporary stopping.

Reports of Societies.

STUDENTS' SOCIETY, NATIONAL DENTAL HOSPITAL.

The last meeting of this Society was held on Monday, May 10th. Dr. Cunningham, the President of the Society, in the chair.

Mr. Pavitt was proposed a member of the Society, to be balloted for at the next meeting.

Mr. Whitrod was balloted for, and unanimously elected a member of the Society.

The President then called on Mr. Must for his paper on "Photo-micrography," which is published on page 484.

Having read his paper Mr. Must showed the practical working of his Photo-micrography Camera, and explained in a most lucid manner the manufacture and mechanism of it. The first specimen shown was a pulp stone, the second, a section of a cod's tooth, of both of which photos were taken by Mr. Must, who gave an exposure to each of the plates of about 45 seconds, during which time it was necessary to shut off the light, owing to the vibration caused by passing traffic, which interruptions he explained, had no ill effect on the negatives.

The two plates were developed by Mr. S. Rose, and were handed round for inspection.

During the evening a number of photos taken by Mr. Must by this process were handed round, by the style and finish of which it was seen that he was no amateur at the work.

In a discussion which followed, Dr. Cunningham remarked on the simplicity of the apparatus used by Mr. Must, and said that a man was a great worker who could demonstrate with simple materials. As to the light used, without too much attention to details, and with an ordinary lamp, Mr. Must had produced some excellent photos.

Dr. Round also spoke.

At the close of the discussion, Mr. Must showed twelve slides by the means of the oxyhydrogen lantern, all of which he had prepared by his process.

Dr. Cunningham also showed some slides prepared by M. Choquet, of Paris, which were kindly lent for the occasion by Messrs. Ash & Sons.

A hearty vote of thanks was proposed by the President to Mr. Must for his paper and demonstrations, and the meeting terminated.

Dental News.

MOSS HARRIS. UNREGISTERED DENTIST AT BRIGHTON.

At the Brighton Borough Bench on the 18th ult, before the Stipendiary (Mr. C. G. Heathcote), and other magistrates, the adjourned summons against Moss Harris, of 99, Western Road, Brighton, for using the title of "dentist" contrary to the Dentists' Act, 1878, was proceeded with. Mr. W. H. Blaber, solicitor, (of the firm of Blaber & Watson, 12, Great Castle Street, Oxford Circus, W.), again appeared for the prosecution, and Mr. Bertram Jacobs defended.

Mr. Blaber said that the case had been originally adjourned on January 19th last, owing to the fact that there was at that time a case pending in the High Court of Justice in which a large number of unregistered practitioners (Mr. Harris being one) were endeavouring to obtain a mandamus calling upon the General Medical Council to show cause why their names should not be placed on the Dental Register. Since then, there had been two more adjournments, as the case in the High Court was abandoned, and fresh proceedings instituted by one of the gentlemen before mentioned, (Mr. Spero) presumably as a test case. A rule *nisi* for a mandamus was obtained in due course, and the case was heard on May 7th, before a Divisional Court of the Queen's Bench, consisting of Mr. Justice Hawkins and Mr. Justice Wright, and the rule was discharged and a mandamus refused. He understood it was now proposed to call further evidence for the defence, but he pointed out that the case was thoroughly gone into on the 19th of January, when it was first before the Court, and that after hearing the evidence, the Stipendiary said he was perfectly satisfied, and he (Mr. Blaber) thought it would be somewhat unreasonable to open the case again after this lapse of time. On behalf of the prosecution he strongly objected to any further evidence being given. Mr. Clydesdale, who appeared for Mr. Harris on that occasion, had admitted that there had been a technical offence, and the only question was as to the amount of the penalty to be imposed.

Mr. Jacobs said that on the day following the first hearing, application was made for process against several witnesses for perjury, but that was refused by the Bench, who thought the matter should remain over until the conclusion of the case in the High Court. That left them in this position, that the only way to nullify the evidence which had been given was to call rebutting evidence, and that was what he proposed to do. Referring to the admission by Mr. Clydesdale of a technical offence, he said such an admission by counsel in a criminal offence had no validity whatever.

The Stipendiary: But supposing counsel pleads guilty on behalf of a client, and the client stands by and says nothing?

Mr. Jacobs : That is an extreme case, but even then I say an admission has no validity. He hardly liked to go behind the scenes in this matter, but he had only been instructed quite recently. Mr. Clydesdale at the first hearing was instructed on the spur of the moment, and the case for the defendant had not been got up properly at all. At any rate defendant could hardly anticipate such evidence as was produced—evidence absolutely false. It was hardly possible for counsel in Court to hear from Mr. Harris, who was rather deaf, whether the evidence was true or not ; and Mr. Clydesdale took it that barefaced falsehoods were not likely to be told.

The Stipendiary said he had no doubt the case was finally closed ; but he should be unwilling to shut out any evidence that might be in favour of the defendant.

Mr. Blaber said the only reason for an adjournment was that the case in the High Court would probably influence the Bench as to the amount of the penalty.

The Stipendiary : Yes, but I think that carries with it the consequence of hearing further evidence. I will hear the evidence.

Mr. Blaber : Of course, I am not prepared. I have not got my witnesses here again to-day.

Charles Gardner, engraver, of 20, Queen's Road, Brighton was then called, and said he supplied a brass plate for the front of Mr. Harris' premises two years ago. The plate had no word "dentist" on it. He examined the plate a week ago, and there was still no word "dentist" on it, nor were there any signs of the word having been removed. He had not particularly noticed the plate between the two occasions referred to. He thought the photograph of the front of Mr. Harris' premises (produced) was correct.

John Marks, of 27, West Street, shop-fitter, said he had fixed a brass plate to Mr. Harris's shop front. He had not noticed the word "dentist" on the front, but he thought the word dental was there.

John Oliver, 88, Church Road, builder, said he knew Mr. Harris's front: He wrote the blinds produced in February, 1896.

Cross-examined by Mr. Blaber : The words on the blinds were precisely the same as when he wrote them. He swore that the word "dentist" was not on the blinds.

Harriett Elizabeth Smith, of 193, Ditchling Rise, Brighton, said she was a patient of Mr. Harris's. The first time she went to Mr. Harris's establishment was on the 4th January last. She did not see either "dentist" or "dental" on the front of the house.

Cross-examined : She admitted that she had not noticed the wire blinds or what was on them.

Mr. Jacobs said he could call more witnesses to say that the words "dentist" or "dental" were not on the front of the house.

The Stipendiary : I think it is very probable that a mistake was made by the witnesses as to the words being there.

Mary Bowler, of 9, Powis Grove, said she had been a patient of Mr. Harris for five years. She was in the waiting-room at Mr. Harris's place on the 4th January last when a lady and gentleman were shown into the consulting room adjoining. The communicating door being open, she heard the conversation that took place between them and Mr. Harris. The lady gave her name as Miss Watts. Witness heard one of them ask the price of a set of false teeth, and there was some conversation about a receipt and a deposit.

Cross-examined : She remembered the occurrence particularly, because she afterwards saw a newspaper report of the prosecution and remembered the name of that witness (Miss Watts) to have been the name

given by the lady on that occasion. It was quite possible that a lot was said which she did not hear.

Frederick Boulger, of 19, Artillery Street, Brighton, said he was a dental assistant to Mr. Harris, and worked in a room adjoining the operating room. The door was left partly open, and he always heard the conversation that took place there. It was his business to do so, so that in case of any such prosecution as the present, he would be able to give evidence. He remembered a Miss Watts and a Mr. Woods coming there on the 4th January. He had been with Mr. Harris for two years, and during that time neither the word "dentist" or "dental" had been used on the front of the premises.

Cross-examined: It was not necessary for him to leave his work to hear what was going on in the adjoining room. It was not likely that he had missed a good deal of the conversation that took place between Mr. Harris and Watts and Woods. As regarded the gold medal and diploma produced, he believed they were awarded to Mr. Harris by the French Society. He could not say whether it was true or not, that anyone renting a stall in the Paris Exhibition of 1893, and making a display of false teeth, got a medal and diploma whether they had manufactured the teeth or not.

Mr. Jacobs, for the defence said that Mr. Harris commenced to practice about 25 years ago, some years previous to the passing of the Dentists' Act of 1878, the main object of which Act was to provide that all practitioners should be duly qualified by reason of having passed through some dental hospital and having received a diploma from somebody qualified to award the same. Provision had to be made for those who were in practice at the time of the passing of the Act, and they were given until the 1st August, 1879, in which to send in their names for registration. It was objected that it would be quite impossible for all who were then in practice to give in their names by that date, many of them would not be aware of the Act, and accordingly by the 37th section of the Act, discretion was given to the Medical Council, by special resolution, to dispense with examination and put on the register any whom they thought deserving. His client did not apply before the 1st August, 1879, and consequently lost his right to be registered. However, he could have applied to the Council to be registered under their discretionary power, and it was admitted that had he done so he would have been entitled to be registered.

Mr. Blaber: Oh, is it? Why didn't he do so?

Mr. Jacobs: Eventually he did apply, and then the Medical Council said "As far as we can see we should have put you on had you applied in time, but we must draw the line somewhere, we can't be putting people on for ever and ever." In 1892 the Medical Council passed a resolution by which they rescinded their former resolution and determined that however deserving a man might be they could make no exception by putting him on the list. Consequently his client through a piece of folly on his part, remained to this day unregistered. There was nothing in the Act, however, to prevent a person practising dentistry, though unregistered, so long as he did not use words implying that he was a dental practitioner or a registered dentist. That merely applied to the theoretical portion of dentistry which was concerned with the management of teeth, and did not apply to the most important branch of defendant's work, the making of teeth.

The Stipendiary: Do you think they can be separated?

Mr. Jacobs: There is nothing to prevent a person from asserting that he is a skilled maker of artificial teeth, and no prosecution has ever been instituted against a person for making artificial teeth.

The Stipendiary: But if he makes them he must fit them and do all that a qualified dentist is required to do. The use of the word "dentist," by him is contested, but it is admitted that he called himself "gold medallist" and "diplomatist" on the blind. Is not that a description implying that he was specially qualified to practise dentistry?

Mr. Jacobs: No; I submit it shows he is specially qualified to manufacture or fit artificial teeth, especially when you remember the rest of the wording as to the prices of teeth. I submit he was perfectly entitled to show that he was a skilled maker of artificial teeth. The very fact that it was necessary to use words suggesting that he was a qualified dentist is shown by the pains the prosecution had taken to get something very definite in the shape of an admission that he was a dentist or dental practitioner. In fact the prosecution had given up their whole case practically as to the wording on the blinds and show cases.

The Stipendiary: I doubt whether they have gone so far as that.

Mr. Blaber: Oh dear, no, certainly not.

Mr. Jacobs, continuing, said the evidence did not show at all that defendant said he was a qualified dentist. All it showed was that when it was suggested to him he did not deny the soft impeachment. With regard to what the witness Baldry had said about the wording on the outside of the premises he called attention to the minuteness of the details given by that witness, who took notes at the time, and said he thought it was more than a mistake on Baldry's part. Mr. Jacobs, continuing, said the witnesses for the defendant were not called upon the first occasion because it was not anticipated that they would be required. You could not provide in advance against perjury. He suggested that the witness Baldry was telling lies when he said the word dentist was on the show cases and that he was paid to do it.

Mr. Blaber: No, no. That is a remark which my learned friend has no right to make.

The Stipendiary: But could not the counsel have said, "this evidence takes us by surprise" and have asked for an adjournment?

Mr. Jacobs: The counsel could not have anticipated that evidence would be called of conversations, and when he found out that, would not have been aware of rebutting evidence. Mr. Jacobs stigmatised the society who instituted the prosecutions as a society of theory fed practitioners who were not so generous as they should be towards an old practitioner. They were jealous of Mr. Harris's success, and especially of his being able to advertise, which they could not do. He submitted that whatever evidence there was, was prejudiced and perjured. It was not suggested in the summons that he implied he was specially qualified, but that he used the name of "dentist," thereby implying he was registered. It was shown that he had not used the word "dentist," and he submitted that disposed of the whole case.

The Stipendiary (to Mr. Blaber): I should like to hear you on this point.

Mr. Blaber said the witnesses had sworn that they said to Mr. Harris, "Of course you are a dentist," and again, "Of course you are a registered dentist," and he had replied "Yes." He submitted that this was taking and using the name of "dentist" within the meaning of the Act and that the summons as drawn was sufficient to cover the offence complained of. A person might take or use the name or title of "dentist," either verbally or by means of printed letters or writing. If in answer to a direct question such as "are you a registered dentist?" or "of course you are a qualified dentist," or "are you Mr. So-and-so, the dentist?" the person to whom the question was addressed, replied, "Oh, yes, I am," or "that is me," or simply "yes," surely it could not be for one moment contended that he did not bring himself within the third section

of the Act. Taking this admission on the part of the defendant in conjunction with the rest of the evidence which showed that he had been known as the "gold medallist," and the "Diplomist," he submitted that the defendant had held himself out to the public as a registered practitioner of distinction, and had by his replies to the enquiries addressed to him, clearly brought himself within the section.

The Stipendiary said he could amend the summons to include words suggesting that the defendant had implied that he was a registered dentist.

Mr. Jacobs objected to this.

The Stipendiary : I should be quite justified in doing so.

Mr. Blaber pointed out that the patrons of Mr. Harris had called them selves "patients," and "patient" was a term applied to persons who consult proper medical men. Mr. Harris so described them on his cards and circulars.

The Stipendiary : "Patient only means "one who suffers." I am sorry to say it has been so in my experience. (Laughter.) The Stipendiary said there must be a conviction in this case. The learned counsel for the defendant had made out a very ingenious and proper defence, but he did not dispose of the impression on his (the Stipendiary's) mind, when the case was, as he thought, closed, that he thought the defendant had acted in such a way as to constitute an offence in the meaning of the Act. He had been carefully considering whether the summons ought to be amended or not, but thought it unnecessary because there was no doubt defendant did take and use the title of "dentist," and in conjunction with a number of other titles which certainly implied that if he was not registered he was specially qualified to practise dentistry. He did not wish to express any opinion as to whether the word "dentist" was or was not in the shop window, but there was no doubt that other words amply and strongly calculated to cause any one to think he did claim for himself the title of dentist and was specially qualified to practise dentistry were used. Each witness had said he put this question to Mr. Harris—"Are you Mr. Harris, the dentist?" and he replied, "Yes." He (the Stipendiary) fully believed he did say it, for it was obvious that if a person practising dentistry were to say, "No, I am not," the questioner would immediately walk out of the surgery. An attempt had been made to separate the functions of dentistry, but he did not think it was possible to do so. There was no doubt that he had and was now practising dentistry; the only question was whether he had made himself liable under this section. He (the stipendiary) thought he had done so, and he saw no reason why he should distinguish between this case and those that were decided at the time when this first came on.

Mr. Jacobs said Mr. Harris was entitled if he had applied in time, to be placed on the register, and the defendants in the other cases were not.

A fine of £5 was imposed, four guineas being also allowed as solicitor's costs, and £1 1s. 6d. Court fees; in default, twenty-one days' imprisonment with hard labour.

Mr. Blaber said that after the remarks which had fallen from his learned friend (Mr. Jacobs), who suggested that those prosecutions had

been taken from jealousy on the part of the registered dentists of Brighton, he felt it necessary to say that such, of course was not the case. The chief object of the prosecutions had been to render that protection to registered practitioners which they were entitled to under the Act, and also to protect the public, especially those of the poorer classes, such as servants and others, and he trusted that through the medium of the press these would be warned in the future from consulting so-called "dentists" who were not actually qualified and on the register.

SARCOMA OF UPPER JAW REMOVED THREE AND A HALF YEARS AGO.

Mr. Littlewood, at a meeting of the Leeds Medico-Chirurgical Society, showed a man, aged 56, who was admitted to the Infirmary on October 2nd, 1893, with a sarcoma involving the superior maxilla and malar bones in the left side. He first noticed the swelling two months previously. The operation was performed on October 4th: Preliminary laryngotomy, removal of upper jaw with malar bone and part of zygoma. On October 7th he got up, and on October 21st he went home. There had been no recurrence since.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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IMPRESSION TRAYS AND MATERIALS.*

By Mr. J. J. SHORROCK.

The tendency of the profession is at present undoubtedly in the direction of Dental Science and Art Preservative rather than Art Restorative ; to retain usefully the natural organs rather than to replace with artificial substitutes. This is unquestionably right, and if all patients were wise in due season, and all dentists supremely skilful, the tooth carpenter and artificial quack would die from natural causes, but unfortunately these days have not yet dawned. It is therefore necessary to strive after perfection in the artificial department.

For the construction of an artificial substitute mounted upon a plate or base it is necessary to have an exact model of the part upon which it is to rest and to which it is to be attached. For this purpose a perfect impression of these parts must be obtained, involving first, choice of a suitable material for impression, and secondly, of a suitable impression cup. The ordinary impression cups sold by the depots are familiar to us all, and I shall say nothing about them, but pass on to those cases which require special trays to be made. The method of making a tray is as follows : A thin sheet of modelling composition is placed over the model covering both teeth and gums, care being taken to trim off the composition

* Read before the Students' Society of the Victoria Dental Hospital.

towards the ends of the gum. A sheet of wax is then placed over this composition and cut to the shape of the tray required, a peg of wax being used for the handle, this model of the tray is then placed in a plaster mould of two sections. When hard the wax is removed in the usual way, and it will be seen that the peg of wax had not only served as a handle, but the place from which it was taken may now be used as a funnel in which to pour the melted metal. The two halves are now placed together and the metal poured into the hole. Lennox metal is usually used for this purpose, but I find that tin and lead in the proportions of two to one respectively are quite as suitable. The mould is then opened and the tray taken out and trimmed in the usual way, and if you are particularly conscientious it may be brushed on the lathe. I shall have something further to say with regard to special trays for plaster impressions at a later period.

Impression materials. The material for taking the impression should be of such a nature so as not to press out of position the parts of the mouth which we desire to copy. After the material has taken an impression there should be absolutely no change possible in the removal, for if there is, your impression is untruthful, and you have no means of knowing its extent, nor have you the power to correct it.

Materials must possess the following properties :—

1. Plasticity.
2. The property of hardening in a short time, and under conditions not incompatible with the mouth.
3. Absence of expansion or contraction.
4. They must not possess an unpleasant taste, smell, or appearance. -

There are four materials answering to these requirements as distinct in their properties as in their source. From the animal kingdom we have bees-wax, from the vegetable king-

dom, gutta-percha, and modelling composition, and from the mineral kingdom, plaster.

The comparative value of the four impressions can only be determined by a careful study of their distinctive properties, the special requirement and difference of mouths, the kind of base plate and manner of construction.

The exclusive use of one is as culpable as the indiscriminate use of the other ; no one is best, nor can any be dispensed with.

Bees wax. Formerly the only material used, and is yet very useful for certain cases. It demands strong pressure and is inelastic. It neither expands or contracts. It copies a hard gum accurately, although it never gives the fine tracery of gutta-percha. It copies a soft gum, but not until the gum is either pressed or thrown out of shape.

Gutta-percha. This very valuable material will be found useful in taking impressions of the lower jaw, and in some partial cases in the upper jaw. It requires moderate pressure is slightly elastic, and also has as its marked peculiarity very decided contraction on cooling, which however is under control.

Modelling Composition. Is composed of gum damar, stearin, French chalk, and carmine to colour. It ranks next to plaster as an impression compound, its fine tracery gives an accurate impression, more so than wax.

Plaster. Sulphate of lime, gypsum, is composed of 28 parts of lime to 40 parts of sulphuric acid and 18 parts of water. If after these are thoroughly powdered and calcined a mixture is made with water to the consistency of cream, it will harden in a few minutes and acquire great solidity. The plaster has *chemically* united with a portion of the water, while another portion is *mechanically* held in the porous portion and may be driven off by drying. During the process of consolidation it expands in consequence of the absorption of the water by

the particles of plaster. If the plaster is very fine grain the absorption takes place quickly and the expansion occurs while the plaster is soft. Hence the fine grain and well calcined quality only must be used for dental purposes. Plaster only requires gentle pressure for taking impressions of the softest gum in the natural position. It sets so hard that it will break before leaving the smallest undercut. It will be perhaps convenient at this point to mention a tray for taking plaster impressions which is suggested by Dr. Horace Deane. He says, "Partial lower impressions have always been a matter of great trouble to me, and I believe to others, especially where there is much undercut, or where the teeth lean in a good deal, or both together. I have been able to think out an adaptation of this system to such cases, but it is still largely a matter of theory. I will give you my ideas on the subject, so that we can all work at it and perhaps obtain something that will be of general benefit. In such a case, after getting a model of the lower jaw from a wax impression, I should trim, to as close an approximation of the mouth as possible and then prepare the wire and plaster, or wire and composition shell in the same way as for a partial upper, excepting that I should leave a portion of the wire net just back of the front teeth uncovered by plaster for a space of perhaps a quarter of an inch in width, and extending from the cutting-edges of the teeth down to the floor of the mouth. This forms a hinge which will allow the free ends of the shell to be pressed toward the tongue, and so make it easy to carry the plaster down over the crowns of projecting teeth. When down to its place, press the sides of the shell laterally against the teeth and hold till the plaster is set. Of course, by this time the plaster of the impression covering the hinge has also set and made that portion rigid. If, now, you can easily remove the shell and its contents, do so. If not, again press inwardly the free ends of the shell till

the plaster over the hinge is broken and the sides are clear of the teeth, then remove, and by pressing the shell outwardly till the fractured edges are touching, the impress is restored to its truthful position."

Having now seen the peculiarities of the different preparations let us look into the special requirements for different mouths.

Alveolar and Palatine surfaces have a great variety of conditions. These must be carefully examined with reference to the properties just indicated of the impression materials. We have large or small arches, deep or flat ones, irregular or smooth, or rigid, hard, or soft palates. The ridges hard and the palates soft, or vice versa. No one material can possibly be suitable to these varying conditions.

The mode of constructing the plate will often determine the material to be used. A plate swaged upon a zinc die is smaller because of the shrinkage of the die. Here plaster would be the best and gutta percha the worst. A vulcanized plate is larger than the mouth by the expansion of the plaster. Here gutta-percha will be best, for it proves a valuable compensation.

Plaster is the most reliable as a general rule and is the only material upon which we can place reliance in duplicate cases. It is often difficult to tell which impression compound will be the best but in cases of failure let the second impression be taken with a different material if the fault lies with the material and not with the operator.

It is evident that an enumeration of all the complications which call for the exercise of judgment in the selection of a material is impossible. By suggesting the use of all and not the exclusive use of one I hope to direct your attention to a much neglected point. Many practitioners go on year in and year out, using one material and saying that they have always found that to work and don't intend to change. Resort to a

practice which inquires into the reason of nothing, and the one-idea system with its "Practice makes perfect" motto are equally at fault.

A FEW HINTS TO DENTAL STUDENTS.

By GEORGE GINGELL, L.D.S.Eng.

Do not disparage another man's work, it will do you no good if you do ; remember you are a professional man.

Do not refuse part of your fee *if offered* as a deposit (a good old-fashioned system) ; laudable desires should not be discouraged.

In receiving a bank-note as a fee be careful to open the same in the presence of your patient before you run down stairs to get change ; the writer once had the value of a note disputed by omitting this rule.

Never give an anæsthetic alone, especially to a female ; have someone else in the room, if only the boy in buttons. You are running more risks than one.

Never assist a female patient to loosen her dress ; you have no means of knowing the working of her mind.

Do not tilt your patient back suddenly with your brand-new hydraulic-pump, pedal-lever, &c. chair. Some ladies very strenuously object to this, and they are not so proud of this magnificent piece of mechanism as you are ; always tell your patient what is coming, and do not be too quick, especially with elderly people.

Have your Surgery as much like a cosy sitting-room as possible ; do not expose specimens of dental horrors. Your patients are not interested in them. Keep instruments out of sight as much as possible, and cover up that dreadful engine.

Avoid having pictures of the undraped human form divine in your surgery or waiting-room.

British Journal of Dental Science.

LONDON, JUNE 15, 1897.

MUTUAL ASSISTANCE.

Eustace Budgill, writing in Addison's *Spectator* in 1712, says: "I have often wondered at that ill-natured position which has sometimes been maintained in the schools, and is comprised in an old Latin verse, namely that 'a man's knowledge is worth nothing if he communicates what he knows to any one besides.' There is certainly no more sensible pleasure to a good natured man, than if he can by any means gratify or inform the mind of another. I might add, that the virtue naturally carries its own reward along with it, since it is almost impossible it should be exercised without the improvement of the person who practises it." These words were written at a time when science was beginning dimly to grope and feel its way to a larger and fuller scope, and thus evince a liberal spirit at an epoch when professional secrets were kept closely guarded, and prejudice and isolation were to a large extent, the order of the day.

In our own profession, and within the memory of many of our readers, this secrecy and isolation were the rule. In a paper recently read by Mr. WOODHOUSE, a description was given of the life of the dentist within the last half century. He describes how individual methods and workroom recipes were jealously guarded, and every practitioner was inclined to look on his professional brother as his antagonist and natural enemy. This has all been changed, and at the present time our Societies bring us together for mutual discussion and help, while our journals vie with each other in publishing information for the good of all. These thoughts are suggested to us by a few aphorisms from a

contributor, appearing in another page. They apply more perhaps to the dental practitioner than to the dental student, as they are hints on the treatment of private patients and conduct of practice. The dental student is more concerned with science theoretical and practical, while the practitioner—while not losing touch with scientific knowledge, we hope—is also a man of affairs, and has to acquire lessons in human nature and *savoir faire* in the school of experience. To the latter, our contributor's few hints—gathered from practical experience—will be of value.

As regards criticism of another person's work, if we cannot commend, the best plan is to say nothing. We cannot tell all the facts of the case, and one's patient's memory and veracity are not invariably to be relied upon. The hint with regard to accepting part of the fee as a deposit, is not to be despised. Patients sometimes change their minds or lose their courage, often with loss of time to the practitioner. There is nothing derogatory in accepting such an evidence of *bona fides* if offered, though to demand such—unless under exceptional circumstances—we consider both unwise and undignified. With respect to money transactions between our patients and ourselves, we cannot show too great care and precision. We know of a case the reverse of the one quoted, in which through inadvertence, change for a five pound note was given when the note tendered was for ten pounds. We can imagine a case in which this might lead to unpleasantness. The hint with regard to anæsthetics is one often dwelt upon in these columns. The risk to the patient, if occasion should arise in which assistance is required, should be guarded against, as also the peril to the practitioner's reputation in the case of a charge of criminal assault. The man who would "assist a female patient to loosen her dress" exhibits a temerity we cannot fathom. He indeed, "has no means of knowing the working of her mind," and to many of us the mechanism of her dress might be equally puzzling. As a rule, a female patient going to take an anæsthetic, is accompanied by a friend, and this plan does away with many difficulties. The friend need not

necessarily stay in the room during the operation, indeed it is often better if the companion leaves the room after the first few inspirations, to be recalled when their friend has recovered consciousness. The hints as regards chair-tilting and ostentatious display of apparatus are excellent. We must never forget that we are apt to look upon our work from a very different standpoint to that taken by our patients. They are much more impressed by our dexterity, sympathy, general manner and cheerful surroundings, than by an imposing array of apparatus, diplomas, and the wonders of science generally. "Knowledge is now no more a fountain sealed," and as "knowledge is power," any help towards increasing our power of becoming useful members of Society, and helpful to others by receiving a draught from the fountain from those who have the means to bestow it, ought to be gladly received by those who still have their experience to gain.

PLATINUM SILVER ALLOYS.—At a recent meeting of the Chemical Society, a paper was read on these alloys, and their solubility in nitric acid, by Mr. John Spiller. He found that platinum silver alloys would not dissolve as the text-books say they should. Accordingly he had made definite alloys of these metals, and treating them with pure nitric acid he found that no more than 1 per cent. of platinum in the mean could be dissolved with the silver. In the discussion, Mr. Vernon Harcourt threw some doubts on the exact composition of the alloys; and Mr. Friswell suggested that the old statements were due to the use of nitric acid containing sulphur.

THE NATIONAL TEMPERANCE COUNCIL AND THE LONDON DENTAL HOSPITAL.—We see from a notice in the *Times*, that at a recent meeting of the Council, a resolution was passed protesting against the action of the London Dental Hospital authorities, in trying to procure an extended licence for a public-house occupying the ground-floor of what is to

be their new Hospital. We do not consider a public-house an altogether desirable adjunct to a Dental Hospital, although we note the fact that the National Dental Hospital is next door to one. We suppose it is a matter of business, but it has always appeared to us that there was no dearth of places of refreshment in the classical precincts of Leicester Square.

A LADY QUALIFIED AS A DENTIST.—By the recent success of Miss Ruby Grace Halliday in passing the Examination for the Edinburgh L.D.S., we believe a second name has been added to the roll of ladies practising dentistry with a diploma. Although Miss Halliday studied in London at the School of Medicine for Women, and the National Dental Hospital, she was obliged to take a Scottish qualification, as the English one is not open to women. We hope this restriction will be removed in time, and we wish Miss Halliday all success in her profession.

DENTISTS FOR THE UNITED STATES ARMY.—We are glad to see an appeal has been issued to the Dentists in the United States to advise their representatives in Congress to advocate the passing of an Act providing for the employment of Dentists in the United States Army. When we consider the importance of the teeth in the animal economy, and the terrible way in which teeth at the present time are decaying, we can only feel grieved and astonished that military authorities should be so supine as they seem to be both in this country and elsewhere. In cases of fractured jaws too, so common in warfare, the assistance of the dental surgeon would be most valuable. We wish our Transatlantic *confrères* all success in their crusade.

CATAPHORESIS.—The opinions regarding cataphoresis as an anæsthetic in dental operations seem to differ. Some writers affirm that, applied properly for a considerable time, excellent results are obtained. Others say practically that

the game is not worth the candle, as it takes a long time, its application is often painful, and the apparatus terrifying to the nervous patient. One writer affirms that the electric current alone gives just as good results as when used with a strong solution of cocaine or guaiacol in obtunding sensitive dentine. In any case twenty or twenty-five minutes consumed in applying the current is a serious drawback to its use in ordinary practice. We are inclined to agree with the practitioner who writes that the best method he has found in dealing with sensitive dentine is to have dry cavities, sharp tools, and a quick and sure hand.

MYSTERIOUS LANGUAGE.—Language was given to us—according to Tallyrand—to disguise our thoughts. A writer in the *Dental Digest* may simply teem with thoughts, but he has disguised them by his language in such a way that we candidly confess that after reading his paper, the only effect produced is one of bewilderment. What are we to make of the following?—"This vis-plastrix of organic composition is a sovereign factor in all promethean display, though of such subtle yet positive character that its realms are shunned and neglected through fear and dread of incomprehension by those who have wandered by aid of the Diogenesic lamp through the mysterious labyrinths of this obscure primogenial phase, and they have at last failed to hand out to the hungry student that pabulum of mental nourishment for which our souls do most thirst and our lives grow weary and waning under the dismal aureola of savantic despoil." Our lives "grow weary and waning" with this "pabulum of mental nourishment."

THE THICKNESS OF THE CRANIUM.—M. Lagneau, at the Académie de Medecine of Paris, has recently read a paper on the thickness of the cranial bones. He says that the ancient historian Herodotus has remarked after a battle that

the skulls of the Persians were more fragile than those of the Egyptians. Broca has affirmed that skulls dating from prehistoric times were thicker than modern ones. Skulls also vary in thickness according to age, the thickness diminishing in old subjects due to senile atrophy.

STUDENTS' SOCIETY NATIONAL DENTAL HOSPITAL.—This Society, which seems in a very flourishing condition, gave a conversazione at the Hospital, on Monday, May 31st. It was largely attended by the Students and their friends, and a really excellent programme of good music was provided by the energetic President, Dr. Cunningham, and his helpers, whom we congratulate upon the success of the function.

PULP PROTECTION.—To protect the pulp from thermal shock or irritation, cut two small disks of rubber-dam. Having the cavity dried ready for filling, touch the floor and walls with pure mastic varnish and apply one of the disks; on the other, place a little soft cement, and with fine-pointed pliers apply—cement down—on the first disk, spreading the cement under the disk with a ball burnisher.

W. Storer Howe, in Cosmos.

CALCIUM PERMANGANATE IN DENTAL SURGERY.—As a powerful and at the same time harmless disinfectant, d'Almen considers that calcium permanganate holds an important place in dental surgery, particularly as affording a means of obtaining perfect antisepsis, both before and after operation. Employed as a gargle in 2 per cent. solution, it is most serviceable after extensive operations in the buccal cavity.

Rev. Intern. de Méd et de Chirurg., vii., 319, after *L'Odontol.*

To remove the black grease from the hand after handling flasks, use a small quantity of spirits of turpentine. Rub this well all over the dirt, then wipe with dry cloth, then use soap and water. After drying, use vaseline or glycerin.

J. H. Drewler.

Abstracts of British & Foreign Journals.

THE TREATMENT OF CHLOROFORM COLLAPSE.

By LEONARD HILL, M.B.

By examining what effect change of position has upon the venous and arterial pressures, and using this as an index of vaso-motor tone, I have been able to show that chloroform is one of the most powerful and rapid depressants of vaso-motor tone that we possess. The cause of chloroform collapse is, in all cases, a primary failure of the circulatory mechanism. It is secondarily that respiration fails, on account of the anæmia of the bulbar centres.

Thus, if the animal be placed in the vertical feet-down position, and chloroform be administered in large amounts, the arterial pressure rapidly falls. When the arterial pressure reaches a low point, the circulation through the brain becomes deficient, and the respirations cease. On then returning the animal to the horizontal position the arterial pressure rises, the cerebral circulation is rendered more efficient, and the respirations will once more begin.

That the cause of chloroform collapse is primarily due to failure of the circulation is contrary to the conclusions arrived at by the Hyderabad Commission.

Examining all the tracings taken by this Commission, I have found that in them, although it is not so interpreted by the experimenters, the same typical fall of arterial pressure is recorded, actually occurring *before* the cessation of respiration. Thus their own experimental evidence contradicts the conclusions arrived at by the workers on the Commission.

There are two types of chloroform collapse.

1. That occurring on primary anæsthetisation. The patient struggles violently and then passes suddenly into a condition of collapse. I have frequently studied this form of collapse in animals. On immediately opening the thorax in all such cases the heart is always found to be in a state of paralytic dilatation. The pulse ceases earlier than the respiration. The paralysis of the heart is produced in the following way:—The animal or patient struggles violently and holds the breath (this is equivalent to a Valsalva experiment),

the circulation is impeded, and the lungs are emptied of blood by expiratory efforts, while the glottis is kept closed, the heart being slowed by reflex excitation of the vagus. The circulation through the coronary arteries is impaired, and the blood therein becomes deficient in oxygen, for the animal is partly asphyxiated. Finally, the patient or animal is forced to take two or three deep breaths ; the air thus drawn into the lungs is saturated with chloroform, the lungs expand and become surcharged with blood, which, in its turn, is saturated with chloroform. This blood passes into the coronary arteries, and the dose of chloroform suddenly carried there is sufficient to throw the heart into paralytic dilatation.

2. The second type of collapse occurs when chloroform is administered slowly, and struggling is not provoked. This type is apt to occur during prolonged anæsthetisation. The cause of the collapse is as follows :—The vaso-motor mechanism becomes paralysed, the blood stagnates within the splanchnic area, the respiration fails from anæmia of the spinal bulb, and, finally, the heart fails also.

The first type of collapse is sudden in onset, and is of the utmost danger to the patient. The second type is slow in onset, and is easily remedied by performing artificial respiration, and by placing the patient in the horizontal position with the abdomen slightly higher than the heart. The Hyderabad Commission only studied the second type of collapse. The Commission neglected the accidental deaths which occurred during primary anæsthetisation before the surgeon had touched the patient, although, in one year, in 39 out of 41 recorded cases, death took place during this period. It is the first type of collapse which is of the utmost importance to the anæsthetist, and it is this type which has hitherto generally resisted all remedial efforts.

I have found that paralytic dilatation of the heart can be remedied in nearly every case by the following simple method : Artificial respiration is at once applied, the thorax is rhythmically squeezed over the region of the heart, while the animal is placed in the horizontal position. If the pulse does not speedily return the animal is dropped into the vertical feet down posture. By this simple means the heart, owing to the influence of gravity, is emptied into the splanchnic area, thus the dilatation of the organ is relieved. Artificial respiration is maintained throughout this manœuvre. After a few seconds the animal is returned to the horizontal posture, and the heart is thus filled with a fresh supply of blood. If

the pulse does not return the manœuvre is once more repeated. When the pulse has returned and the heart-beat has become efficient, the artificial respiration can be discontinued, and after a short space of time the natural breathing will usually return, owing to the excitation of asphyxia. The arterial pressure is similarly improved by temporary asphyxia. During this period the pulse must be carefully watched, and artificial respiration renewed if there be any signs of failure.

In the first type of collapse Nélaton's method of inverting the patient head downwards is worse than useless. The paralytic dilatation of the heart is thereby increased. That the heart is emptied by the vertical feet-down position, and that it recommences beating when emptied, can be observed with great ease on opening the thorax of an animal during the state of chloroform syncope.

I feel convinced that a saving of life will result : 1. From following the rule of the Hyderabad Commission that chloroform never be pressed during the stage of struggling. 2. And from employing the method of recovery described by me.

The second type of collapse is relieved by the vertical head-down position (Nélaton's method). It is equally relieved by the horizontal position and artificial respiration. As the anæsthetist can never be sure which type of collapse he has to deal with, it seems to me that Nélaton's method should never be employed. If we have to deal with the first type of collapse, Nélaton's inversion is a fatal mistake ; if the second type of collapse confront us, recovery can be brought about by performing artificial respiration and placing the patient in the horizontal position.

From the results of the experiments upon animals the injection of morphia combined with atropine should be of the greatest value in cases where chloroform anæsthesia is required. The morphia prevents both the fear of the anæsthetic and the shock that follows after. It also, by maintaining vaso-motor tone, lessens the hæmorrhage, which largely owes its origin to the venous engorgement produced by chloroform.

Treatment.

A PLEA FOR A GREATER USE OF NON-COHE-SIVE GOLD.

By J. N. CROUSE, D.D.S., Chicago.

Having read various papers on the use of gold and the filling of proximal cavities, I have been alarmed at the apparent disuse of an old but very reliable method, namely, the use of non-cohesive gold in the form of tightly rolled cylinders, which is the wedge principle. These cylinders are best made from No. 3 or 4 gold foil, which should be non-cohesive. If it has any cohesiveness, that should be removed by placing the foil in a drawer with ammonia for a few hours. To make the cylinders fold the gold leaf upon itself until you have a ribbon a little wider than the depth of the cavity at the cervical margin. Having filed a broach to a triangular peak, lay it on one end of the ribbon and turn gently when the gold will be wrapped around the broach, making cylinders a little more in width than the depth of the cavity.

These cylinders are made differently for various cases. In large cavities the first one or two may contain a sheet of No. 3 foil, the rest less; some rolled quite tightly on the broach, others less so. With a variety of cylinders thus prepared we are ready to fill well a large proportion of the cavities which occur on the proximal and buccal surfaces of bicuspid and molars, and in one-fourth the time required to make as safe a filling with cohesive gold.

About the same amount of time and painstaking effort is needed in either case to prepare the cavity, but it is shaped somewhat differently for non-cohesive gold, and especially for cylinders as described. There are no pits drilled in the dentine from which to start the filling, and the cervical walls need be but little undercut, as strength of anchorage when the cavity is completed is depended upon toward the grinding surface, this being the point where the greatest strain comes on the filling by force of mastication. The lateral walls usually have sufficient undercut when the decay is removed, or if not, slight grooves or undercuts should be made.

With the cavity prepared, and where the walls are of good strength, it is a waste of time to use cohesive gold for any except the latter part of the filling, and then only in cases where it includes part of the grinding surface; select a

cylinder which when placed lengthwise will extend a little beyond the cervical margin, or in cases of large and deep cavities one large and long enough to rest against the opposing tooth and to entirely cover the cervical margin, and start your filling. In extreme cases two sheets of No. 2 made into one cylinder can be used to good advantage. Generally, however, a large cylinder on each side and a smaller one between the two makes a good foundation. Always remember at this point not to condense each cylinder separately, thus crowding them apart, but a place should be made for the next one, which should be rolled tighter and of a size that will occupy the place as a wedge. Continue until the cavity is about two-thirds full, when, if it is required, cohesive gold can be driven into and between the cylinders at different points, and then the whole mass of gold, being for the most part non-cohesive and so quite ductile, may be forced into every crevice, making a very perfect filling. On top of the cohesive gold already in the cavity we can readily add more and so continue the filling over and on to the grinding surface, contour and finish.

Dental Digest.

DENTAL AMALGAMS.

Dr. A. C. Hewitt, in an article on the "Uses and Abuses of Amalgam," attributes failure, in many cases, not to the alloy itself, but to the "lazy, shiftless, dishonourable and dishonest workmanship" as contrasted with the daily and yearly work of honourable men without whose work amalgam could not have attained the rank it now securely holds.

Among the abuses pointed out are, failure to use efficient means of securing perfect dryness, carelessness in divesting the alloys of mercurial super-saturation, failure to so pack as to secure equal density throughout the mass, exposing the comminuted material to the oxidizing influences of air and light, instead of keeping it in bars or ingots to be filed or turned to ribbons or chips as required for immediate use, mixing the alloy and mercury with soiled fingers in sweaty palms, thereby increasing the porosity of the amalgam and lessening its capacity to bar out oral fluids, etc., etc.

When either purse or tooth demands something else than gold, whatever material is used, skill and honest endeavour

are always demanded on the part of the operator. Dr. Hewitt believes, from experience and observation, that when an amalgam filling is indicated it should be both a stopping and a remedial agent, and he, therefore, prefers copper amalgam as having both tonic and stimulating properties, devoid of escharotic effects.

He reviews the objections urged against copper amalgam, viz. : Cupping or washing out on occlusal surfaces, darkening tooth substance, staining contiguous gold work, etc., and the methods of overcoming these objectionable features, which, he claims, require only a correct formula, and the observance of chemical and metallurgical laws, uniformity of methods giving uniform results. He then gives, in detail, the methods by which he secures the desired results, the method of preparing the cavity, of preparing the amalgam, and of inserting the alloy, the presence of moisture being the worst for and an abuse of copper amalgams.

Dental Register.

TOOTH STRUCTURE AND ENVIRONMENT.

By Dr. BLACK.

These conclusions are substantially : That the structure of the teeth is not a factor in their liability to caries, further than that pits, grooves, fissures and roughness of surfaces give opportunity by inviting lodgments and facilitating the growth of micro-organisms at particular points. That the predisposition to caries is to be found in the environment of the teeth. That this predisposition is some condition of the secretions or fluids of the mouth which renders the active cause of caries (micro-organisms) effective in its production.

The question of hard teeth and soft teeth has been found to have no relation whatever to the occurrence of caries. The hardest teeth and those with the most perfect enamel seem as likely to become carious as those less dense and less perfect in the structure of the enamel.

These conclusions have no reference to whether or not teeth with imperfect enamel or of least dense structure will decay more rapidly when the predisposition to caries is present, but it has been noted particularly that teeth with the

most perfect enamel and of the densest structure decay very rapidly when the predisposition to caries has rendered the exciting cause active.

In all of those cases in which the teeth seem to have improved in quality or depreciated in quality, the change of condition has not been in the teeth themselves, but a change has occurred in their environment—in the secretions and fluids which has affected the active agents producing caries in the one case tending to immunity, and in the other increasing its activity.

The particular conditions of the secretions constituting a predisposition to caries or inducing immunity from caries is as yet unknown.

These considerations and conclusions are of the utmost importance in filling operations. We have the assurance that however soft teeth may appear to cutting instruments they have sufficient strength for any reasonable filling operations. Whenever the predisposition to caries is found to be strong this fact calls for the exercise of the utmost diligence and care in planning the defense of the teeth; and especially of laying out the lines of the enamel margins of cavities in such positions that they will be well cleaned by the excursions of food over them during mastication. For this purpose the buccal and lingual enamel margins of proximate surfaces should be carried well out from the contact point and the form of the occlusal surface so shaped as to direct the excursions of food well into the buccal and lingual embrasures of the interproximate space to facilitate the continuous cleaning of these margins. Such portions of the enamel margins of proximate surfaces as cannot be so laid as to receive this natural cleaning, as the gingival margins, should be so placed as to be protected by the free margins of the gums. The fact that caries does not begin upon the portion of the necks of the teeth covered by the healthy free margins of the gum seems to me to be well established by observation, but it does begin in such position in some of the pathological conditions of the gum margin, and is often found to make its beginnings close against the gingival line when the proper guards of the interproximate space have been destroyed, either by extraordinary wear or by mutilation at the hands of the dentist. The reasons calling for this especial care are: first, all portions of proximate surfaces lying within the interproximate spaces are in especial danger when the predisposition to caries is strong. This danger area includes the breadth not cleaned

by the excursions of food or not covered by healthy gum tissue. If this danger area is cut away at once and protected by the filling, the opportunity for recurrence is removed. Second, with the best technique of our time the margins of fillings must still be regarded as danger lines, and in all cases of unusual or even ordinary intensity of predisposition to caries should be so laid as to receive the best possible cleaning by the excursions of food during mastication or be protected by healthy gum margins. The opportunity for the growth of films of micro-organisms upon the lines of the enamel margins should be reduced to the lowest possible point. In laying these plans it must not be overlooked that the seating of the filling must be sufficiently broad and flat that the filling may easily bear the great stress that may come upon it. No fear need be felt for the strength of the tissue of the tooth, for whether gold or amalgam be chosen, the filling material not the tooth structure will be first to yield to stress. When these points are skilfully observed and the mechanical technique is carried out with a careful hand well skilled in the art as known to-day, not many cases will return chagrin to the operator.

Further, intensity of predisposition to caries is not constant. This condition is most likely to occur in youth, and when treated with vigorous care will materially abate in 96 per cent of cases, while not a few become wholly immune. Some of my patients of twenty to twenty five years ago, who then in their youth presented intense predisposition to caries, became immune later and have presented but slight relapses. Among those who have remained under my observation caries has not remained continuously active in a dozen cases. These facts should give courage in the grapple with these ugly cases. It should call out our best effort, and should bring into play the highest form of mechanical technique with best of material—so far as may be at all practicable (we cannot always use it) it should be gold, and gold only. What we may be able to do with improved amalgams in the future remains for test of trial. My experience with amalgam in the past condemns it in all cases when the predisposition to caries is intense, and generally for young people. In the few cavities occurring in cases of low intensity of the predisposition to caries any tyro may succeed. It is the bad cases that call for wise planning and skilful technique.

Dental Review.

METHOD OF TREATING AND FILLING PULPLESS TEETH.

By E. L. DISNEY, D.D.S. Peabody, Kan.

The pulp is devitalized in the usual way: The roots are cleansed as thoroughly as possible, then with cotton dipped into a mixture of alcohol and aqua ammonia, in which, owing to the quantity of liquids, two or three grains of salicylic acid have been dissolved, the roots and crown cavity are thoroughly drenched. In a few minutes this is replaced by cotton dipped in campho-phenique and covered with a pellet of dry cotton. The patient is then dismissed, usually for two days. At the next sitting a fresh dressing of the same kind is inserted to remain until the root filling is prepared. I use oxyphosphate and prepare it as follows: A drop of cinnamon oil is placed on the slab with one or two drops of the cement-liquid and the two are thoroughly mixed. Then the powder is added and worked in till the combination is as thick as good rich cream. With instruments, oiled with glycerin to prevent the cement from sticking to them, the operation of filling the roots is begun and the cement is carefully pushed up until the patient can feel it at the root-apex. Then with larger instruments I continue to press in the cement, and when the pressure by instruments too large to enter the roots produces a slight sensation at the apex, I consider them well filled and proceed with a ball burnisher, or something similar, to spread the cement out over the floor and up against the walls of the cavity, always taking care to leave it in good shape for the reception of our filling, whatever it may be.

Teeth in which the pulps have been dead for months are treated in substantially the same way, but longer, as the treatment must be continued until the cavities are perfectly sweet and clean.

Occasionally, either in the case of devitalization or where the pulp has been long dead, there may be a little soreness at the apex of the root, owing to careless crowding of the cement a little too far, but it usually disappears in a day or two, especially in the former condition.

The method above described, albeit imperfectly, I have

practiced for several years and can testify to its merits. My success has been much greater than with chloro-percha and gutta-percha points, or with any other material I ever tried. To be sure I have had some failures, but who with whatever methods does not have them, and this plan of procedure gives fewer than any other with which I am familiar.

Dental Digest.

SURGERY OF THE ANTRUM.

In a discussion on the above, Dr. Hunt said, You want to get a good, large opening into the antrum. Do not be afraid it will not heal up. As you read the authorities you will find cautions of this kind in reference to the opening not closing up. The greatest difficulty is that they close up too quickly, long before you want them too. It is difficult to keep them open long enough to treat the case successfully. They will close, however, rapidly enough after irritation is reduced and a healthy condition is produced in the cavity, so that you need have no fear which will prevent you from getting a good, free opening, where you can examine it and introduce such medicaments as you may desire.

Dr. Patterson, in continuing the discussion, remarked : I want the opening large enough so that I can introduce my smallest finger and be able to feel all around the cavity. There is no difficulty about the opening being closed up again. The tissue will be reproduced soon after the irritation is removed and there is no more drainage of inflammatory matter. It takes place very rapidly, and very often the bone will become very much as it was, and all appearance of the opening will disappear within two or two and a half months after the operation, provided, of course, there has not been any necrosis developed. I have made openings very large in diameter, almost over the whole lower wall of the antrum, and yet, within a year, there was a formation at least of tissue, which seemed to be good.

Western Dental Journal.

EVIDENCE OF VITALITY IN ENAMEL.

By A. J. WOLFERT.

To demonstrate the presence of living matter we need only to refer to the nourishment of enamel. The process is, of course, slow but certainly active, and can be proven,

1st. By the growth of enamel, deposition of lime salts encroaching upon interstitial spaces which become narrower as age advances while living matter decreases in amount. In temporary and developing teeth these spaces are wider and contents more distinctly seen than in adult and teeth of old people, when the contents have become so delicate that they have long escaped observation.

2nd. By the rapid loss of lime salts in constitutional disease resulting in softening of enamel because of lack of nourishment, re-calcification and rehardening of enamel, although denied by many, has become an established fact.

3rd. Discolouration of devitalized teeth is still another proof that the absence of the nourishing fluid and consequent shrinkage of fibres accounts for the opacity and change of colour which is first noticed in enamel. With these facts before us, how do we explain the sensation of having the "teeth set on edge" when in contact with the citric acid of lemon and other fruits, or when enduring sudden changes of temperature?

Little is known of the sensibility of enamel, but it is no doubt due to some facility or property of vibration which enamel possesses to convey and transmit impressions. And have we not such a medium in the solid fibres of living matter?

And is it not far more probable that the impressions received from external irritants are transmitted along these solid fibres by vibration rather than the assumption that the impression of pain in the case of citric acid being due to a solution of the lime salts.

Dental Journal.

To renovate dirty wax ; Melt in water ; when cool scrape the dirt from the under side ; melt again in pure water and add one tablespoonful of sulphuric acid when it comes to a boil.

IRREGULAR DENTAL PRACTITIONERS.

Several months since the dentists of Brighton combined to prosecute several irregular practitioners of that town. A case was adjourned (that of Moss Harris) because he was one of a number of unregistered men who had applied to the High Court for a mandamus to compel the General Medical Council to place their names on the Register, under the provisions of Clause 37 of the Dentists' Act (the Apprentices' Clause). The case of Spero, to which we referred in a recent issue of the *British Medical Journal*, has been selected as a test one. He was unsuccessful, and has not appealed, consequently none of them can be registered. Application was therefore made for judgment to be given on the Moss Harris case, with the result that a fine of £5 and costs was inflicted, or in default 21 days' imprisonment. The Brighton dentists may be congratulated on their success, but such cases are better undertaken by societies such as the British Dental Association, and by counsel familiar with the Act and its interpretation by magistrates in the large number of cases that have now been undertaken. On more than one occasion prosecutions undertaken by the dentists of a town have failed for this reason. In one of the Brighton cases a doctor was allowed to give evidence as to the skill of the prosecuted, which should not have been permitted, the question of skill not being under consideration, and no evidence should have been allowed upon that side of the question. We deprecate any action of members of the medical profession tending to encourage irregular dental practitioners by sending patients to them or by administering anæsthetics for them. Each year over 100 students, who have gone through a very complete dental education extending over four years, receive their diplomas from the various Colleges of Surgeons in the United Kingdom, and their names appear subsequently in the *Medical Directory*. The process which results in "the survival of the fittest" could be materially hastened if medical practitioners would give their encouragement to qualified dental practitioners only.

British Medical Journal.

TOOTHACHE REMEDY—

B Camphor. vas.,

Chloral hydrat. ... aa gr. lxxv.

Cocaini hydrochlor ... gr. xv.

M. Sig.: To be introduced into the tooth-cavity.

PROFESSIONAL AMENITIES.

By C. P. PRUYN, Chicago.

Under the head of professional amenities we see many things to praise and also many to condemn. I know of some men who have never been heard to say a good thing about another dentist. In the creation of such persons the Almighty seems to them to have exhausted His perfect work in their creation, and all others have very grave faults, real or imaginary. Such men are imbued with the thought that it is their special duty to inform all the people they meet of the particular faults that predominate each and every brother practitioner.

Another cause for apprehension is a manner some so-called professional men have of speaking disparagingly of their brethren to the public or to patients that should call for emergency treatment. You and I have known of men who, when asked about the standing or ability of a brother practitioner, will shrug their shoulders, look wise, and say, "Oh, I guess he is all right enough, but I think he has not had sufficient experience yet for you to put your case in his hands." "Oh, I guess he means to be all right, but he is an old fogey." "He is slower than tar in winter;" "Oh, yes, he is a good fellow, you know, but he doesn't know much about dentistry." "He is doing too much college work or too much writing. He edits a dental journal you know; he gives too much attention to outside work, to his farm, to his fast horses, or the bicycle, or to churches, or he is too much of a society man. He is a great singer, or he is too much of a hobbyist on gold or amalgam or plate work, or orthodontia, or something else." Or the reply may be, "He is a clever fellow: he is one of the best talkers in our medico-dental surgical society. But you just ought to see one of his patients that called upon me last week. Why bless you, sir, it was the most abominable dental work I ever saw in all my life. He is the greatest bungler that ever attempted to fill a tooth." Or if there is no other fault to find, and his skill is generally admitted to be of the best, it is so very easy to say that his charges are simply extortionate, and if you go to him to have your teeth fixed you had better make up your mind

to mortgage your house and lot to get enough money together to pay his fee.

Now, gentlemen, these are not all fanciful figures that I have drawn for your entertainment. They are stubborn facts that you are as fully cognisant of as myself, and I direct your attention to them so that we may possibly avoid some of the professional breakers I see ahead of us, as many of the latter things I have mentioned are the ones that have a tendency to cause us to be somewhat pessimistic regarding the future of our profession.

Now the question I want to put to you as brother practitioners is this : Is it honest and just for us to do any of these mean, contemptible things to any man, particularly one of our own calling? Does it have a tendency to raise the standard of the profession in the estimation of the public, or does it not? I know of cases where a word or two of praise, kindly spoken by older men in favour of young practitioners comparatively unknown as dentists have been the means of great assistance to them in point of morality, integrity and professional success. I have also known the opposite condition to prevail in a great number of cases.

And while it is but natural for the young men to desire recognition and appreciation from the older ones, I sometimes wonder if the younger members thoroughly appreciate what has been done for them ; and if they always are just, and true, and honest in their endeavours to reciprocate for the kindness shown them by their elders.

Dental Review.

It must be borne in mind that the most sensitive cavities with which we have to deal are those at or near the margin of the gum, or along the line of demarcation between the enamel and the dentine. When that line shall have been passed, the sensitiveness in any given tooth diminishes. The most difficult cavities to excavate, and those most in need of obtundents, are those between the teeth, and this is where cataphoresis is always difficult to apply, and most ineffective, if applied, so that it has been impossible for the writer to utilize it to advantage in this class of cases, excepting in readily accessible cavities in incisor teeth.

International Dental Journal.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary monthly meeting, May 3, 1897. Mr. R. H. Woodhouse, President, in the chair.

The Secretary read the Minutes of the last meeting, which were confirmed.

Messrs. J. Lewin Payne, J. G. Wallis, J. B. Parfitt and Henry Wood signed the Obligation Book, and were admitted members of the Society.

The following gentlemen were proposed for membership of the Society. As resident members :—W. H. Dolamore, L.R.C.P. Lond., M.R.C.S. Eng., 37, Queen Anne Street, W.; Stephen Keele, L.D.S. Eng., 16, Highbury Place, W. As non-resident members :—Norris Snell, L.D.S. Eng., 11, Museum Street, Norwich; Arthur W. Turton, L.D.S. Eng., Belgravia, Goole, Yorks.

Messrs. W. R. Humby and G. W. Bateman were appointed auditors of the Accounts.

CASUAL COMMUNICATIONS.

Mr. CLAYTON WOODHOUSE exhibited certain models which he had received from Mr. Peyton Leveson of Hereford, taken from the mouth of a girl of 14. The models on the right side showed an unusual condition of retarded eruption of the first permanent molars and the second bicuspids somewhat similar to the appearance of the impacted condition often met with in the temporary teeth. Mr. Peyton Leveson asked for some information as to the possible cause of the deformity, and for suggestions as to treatment. He (Mr. Clayton Woodhouse) had not seen many cases of the same kind in permanent teeth; but as far as the treatment was concerned, he thought the best thing would be to keep the mouth under observation for a year, and afterwards extract the first permanent molars.

Mr. J. H. BADCOCK thought that one way of treating the case would be to try and lengthen the teeth by means of traction. Such an operation could be done with perfect ease in the case of front teeth; whether it had ever been tried in the case of back teeth he did not know, but he saw no reason against such a proceeding.

Mr. J. F. COLYER exhibited some models on behalf of Mr. H. G. Read. Three of the cases were examples of open bite,

and one was a case of inferior protrusion. The cases were interesting as showing how in bad forms of open bite fair masticating surfaces could be obtained by means of dentures or bridges.

Case 1 was an example of open bite associated with marked protrusion of the mandible, the only teeth in occlusion being the second molars. An upper denture had been made covering the teeth, with the result that a good masticating surface had been given the patient, while at the same time the personal appearance had been greatly improved.

Case 2 was an example of non-occlusion in the region of the bicuspid and molars, and was exactly similar to the case of Mr. Peyton Leveson's which Mr. Clayton Woodhouse had shown. The first permanent molars had been lost, and Mr. Read had therefore capped the second bicuspid and second molar and bridged between them, and had thus given the patient a good masticating apparatus.

Case 3.—This was similar to Case 2, only the masticating surface had been obtained by simply crowning the two second bicuspid and also the two molars.

Case 4.—This was an example of very marked mandibular protrusion in which the whole of the maxillary teeth passed within the mandibular teeth. In this case upper and lower dentures had been made with most satisfactory results.

The PRESIDENT thought the way in which the difficulties had been overcome was very ingenious. He always liked in treating such cases to give the teeth a chance, if possible, of articulating normally. It was astonishing how well teeth would approach one another, even when they seemed to be hopelessly separated, if a sufficient interval of time were given them. The mandibular teeth rose and the maxillary teeth fell, and articulation and mastication were really wonderfully helped. In the cases shown the method adopted seemed to be the only one suitable.

Mr. J. F. COLYER also mentioned a case of what he termed pain resulting from galvanic action. About two years ago he filled a left second mandibular molar for a patient with amalgam. Occluding with this tooth there was a gold crown. The patient returned in two days complaining of distinct pain every time the teeth were brought in contact, and expressed the opinion that the pain was due to electric action. He (Mr. Colyer) cut out the whole of the surface of the amalgam filling where the gold crown occluded with it, and filled up the cavity thus made with a non-conducting filling, and from

that time the patient was freed from pain. He had had a similar case quite recently, which he had not yet treated. The patient was wearing a gold bridge, which occluded with an amalgam filling. The tooth was not painful to heat or cold, but every time the gold bridge came in contact with the amalgam filling there was pain.

Mr. Colyer mentioned another case which he thought was interesting, because it illustrated how difficult it was always to arrive at a correct diagnosis. A patient consulted him in the beginning of the year suffering from slight pain in the maxilla. On examining the teeth he found exposed nerves in the left maxillary second bicuspid and first molar. The first bicuspid was also very carious. There was absolutely at that time no pain, or anything likely to form a source of pain in the mandible. He killed the nerves in the second bicuspid and first molar and filled the canals. After the application of the arsenic the pain, which previously had been slight, became intense, and continued even after the canals had been treated and filled. At the sitting when the arsenic was applied, he filled the first mandibular molar. This tooth was one which had, some time previously, been filled with a copper amalgam, which had to a great extent washed away. In refilling the cavity he did not take out the remaining copper amalgam, but made a slight undercut in the dentine which was exposed, and filled the cavity up with Standard amalgam. The pain continued to be of a wandering character for about eight days, and during this time no teeth could be diagnosed as likely to be a cause of the pain. Eventually the first mandibular molar showed distinct signs of pulp irritation, and was removed, with the result that the pain immediately disappeared. A *post mortem* examination of the tooth showed that there was no exposure of the pulp, and that there was quite a thick layer of copper amalgam between the fresh filling and the pulp. The case was interesting as the whole of the pain was at first located in the maxillary teeth, where there were two exposed nerves, and yet the cause of the pain was a first mandibular molar. He mentioned the case because some two or three years previously his colleague, Mr. Ackery, had to deal with a case of a left mandibular molar in which there was a wasted copper amalgam on the posterior surface. Mr. Ackery made a slight undercut on either side and filled the tooth up with amalgam, not copper amalgam. Two or three days afterwards the patient returned suffering from undoubted pulp irritation, and after a time it became neces-

sary to resort to an arsenical application. The question which suggested itself was, whether the use of other amalgams over the wasted copper amalgams could have caused the pulp irritation in these cases?

The PRESIDENT said he was always very shy of putting amalgam of any other character on a copper amalgam, he liked to remove all the old copper amalgam first, rather than put a new amalgam on the top. He noticed the edges seemed to perish where they touched, but what action that was due to he would not pretend to say.

Mr. HUMBY asked Mr. Colyer what was the cause of the patient's first visit to him—if it had any relation to the mandibular teeth?

Mr. COLYER said the patient was suffering pain distinctly in the region of the maxilla, and it was then that he found the two exposed nerves.

Mr. HUMBY asked Mr. Colyer whether he examined the dentine which intervened between the copper amalgam and the pulp substance for staining, because in one instance where he (Mr. Humby) had a similar experience to Mr. Colyer, the copper amalgam seemed to have imparted a stain to the dentine. In making a section of the tooth, there was a distinct area confined apparently to some of the dentinal tubes passing towards the pulp, and that seemed to have been the only cause of trouble. He thought the reference to the upper jaw did not definitely prove that the pain originated there. Probably the pain originated in the affected pulp, and was probably due to the copper salts entering the dentinal structure. With regard to Mr. Colyer's experience with reference to the pain on contact between gold and amalgam, he had had several experiences of that, and in one case it was the result of a pin on an upper gold plate striking an amalgam filling in a mandibular tooth. The pin was shortened and the pain subsided. In another case pain arose from a gold bridge resting against an amalgam filling.

Mr. J. B. PARFITT said that in a case which recently came under his notice, the contact was between a gold band and an amalgam filling, and it occurred to him that if there were a current, there must be some waste of the amalgam filling to afford the energy necessary to drive that current; and that had set him thinking whether the waste of some amalgam fillings might not be due to such cause. He had particularly noticed in one case, where there were a number of large gold fillings in the front of a mouth and some copper amalgam in

the first permanent molars, the copper amalgam had wasted very badly indeed ; and in another case where copper amalgam was put in a similar position, without any gold fillings at all, it lasted very well.

Mr. BALDWIN said that with regard to Mr. Peyton Leveson's models, it was impossible to decide exactly without seeing the patient, but it seemed to him that there were three methods of treatment possible. In the first place the teeth which did not occlude might be crowned, but then the crowns would be exceedingly long. With misplaced teeth of that sort, one could never be certain that the roots were fully developed, in which case crowned teeth would not last well. The second method of treatment might be with small biting blocks, not attached in the manner of a bridge, but by means of bands to the teeth on each side—biting blocks made of gold struck up and filled with vulcanite, and moulded on the tops of the teeth and made to fit in the same way that a regulation plate fits on the tops of the back teeth when the bite is raised. The third treatment—if it might be called treatment—would be to leave the case alone. Mr. Woodhouse had suggested another treatment, the extraction of the first permanent molars.

With regard to Mr. Colyer's case of pain due to galvanic action, he thought the members must all be familiar with that kind of thing. Some time ago he had a case in which the patient had been wearing away his teeth very seriously by attrition, and he undertook to build the bite up all round. He did that partly by building up some of the teeth with cohesive gold and others with amalgam, and he very soon discovered that it did not do in the least to have an upper tooth built up with gold and a lower with amalgam, for on bringing the teeth together the patient got a severe electric shock. In that case the tops of the amalgams which came into occlusion with the gold fillings he had to cut away and replace by a shell of cohesive gold. Pain in such cases only arose when contact was made or broken between dissimilar metals, and was not present when the metals were simply in contact. In the same connection he might mention that in his own mouth he had had a cohesive gold filling in a live tooth without any cement or any other non-conductor under it, and although it had been in for quite ten years it was excessively sensitive if touched with the end of a fork. It gave quite a sharp shock of pain which was evidently due to galvanic action.

Mr. F. J. BENNETT said it seemed to him that they had not got quite to the bottom of the question of galvanic action, because they had seen cases where gold fillings that had partly failed had had amalgams added to them, so that the two metals must be closely in contact, and yet no shock had occurred. There was one condition that had not been mentioned and which must always occur in order to produce an electric current, and that was an acidulated solution, and he fancied it must be that the shock was felt when there happened to be any acid saliva between the two metals. Another point was that such cases occurred almost invariably in the same patient. It was not at all a condition which they could prophesy would occur in every patient. The band of a gold plate touching an amalgam filling, say a platinum or other metal filling, would not always give a shock. Of course the metals that varied most with regard to their electrical action would be likely to give a greater shock than those metals in which the potential was less. Then the current very likely would be extremely weak. It would be interesting in such cases to apply a little litmus paper and so ascertain the character of the saliva. He did not quite follow Mr. Baldwin when he spoke of the pain being only on making and breaking contact. A current due to metals in acid solution as a rule was a continuous and not an interrupted current. He did not know whether Mr. Baldwin was quite positive as to his facts, if so, he would give way on the point; but so far as his experience went it was not on the making and breaking of the contact that pain was felt, but continuously as long as the two metals were in contact.

Mr. BALDWIN said that he felt perfectly certain in his own mind that pain could only be caused by making or breaking contact, and that while the two metals were together there was absolutely no sensation, no matter how sensitive the tooth might be. That seemed to him to be fairly proved by the case he had related, where, when an amalgam filling came into contact with a cohesive gold filling and he afterwards built up the top of the amalgam filling with simply a flake of gold which was constantly in contact with the amalgam, there was no shock or pain. It was his constant practice to patch amalgam filling with gold or gold filling with amalgam without getting any ill results, and it had also been his experience that when a gold band of a plate had touched an amalgam filling in a sensitive tooth it very frequently caused pain when contact was made or broken, but never while it

rested quietly on the filling. Cases of entire absence of pain in those cases seemed to him to be due entirely to the non-sensitiveness of the dentine. If there were a layer of the non-sensitive dentine underneath the fillings sensation would not be conducted.

Mr. HERN said that his experience tended to confirm Mr. Baldwin's with regard to the pain being chiefly due in these cases to the making and breaking of contact. He had had a case somewhat on the same lines mentioned, where the patient was wearing a gold plate, the band of which came in contact with an amalgam. The patient suffered pain always in putting in and taking out the plate, and to get over that a small gold shell was put over the amalgam, with the result that the symptoms entirely ceased. It had been his experience also that gold fillings could be patched with amalgam and amalgam fillings with gold without discomfort ensuing.

Messrs. J. G. WALLIS, CARL SCHELLING and C. P. BALY also mentioned cases of pain due to galvanic action.

Mr. SPOKES said that with regard to the question of the make and break of contact, he saw a lady from time to time in whom a mandibular third molar and a second molar had fillings, but she never had any discomfort or trouble until they were touched by the rim of the mirror when he was carrying out a periodical examination of the mouth, and then she got a distinct shock at once.

Mr. HUMBY showed an angle mallet which he had designed for use on the dental engine. He said : I have heard a gentleman speak of using hand pressure for the condensation of gold to the exclusion of the mallet, and up to a certain point my sympathy was with him. The hand plugger is a refined instrument, there is no surplus material to get in the way, there is no need for oil in connection with its use, the pressure may be regulated and directed towards any part of the cavity at will and need not coincide with the long axis of the plugger as in the case of hand or straight mallets used with the engine. If sufficient time were given, I have no doubt that equally good plugs might be made by the use of hand pluggers as would be possible with mechanical or electrical mallets. My conception of an ideal instrument is one which, while it conforms as nearly as practicable to the form of our hand instruments in size and outward appearance, should be capable of striking an efficient blow in the required direction. The blow should be crisp and extremely rapid (it need not be very heavy), and the instrument should not be restless in the hand,

as a strong grip would then be absolutely imperative in order to prevent the pounding of the edge of the cavity. At one of the annual exhibitions in connection with the British Dental Association Messrs. Ash and Son showed an angle mallet, the power of a straight blow being used, and by means of inclined planes the blow was diverted to a right angle. Mr. Moore invented the plan of using cycle balls to convey, through a pipe, the power to the plugger. Thus a reciprocating motion was used in making the blow, the latter being diverted to the necessary angle by the two devices I have mentioned. Still, to my mind, neither the one or the other conformed to what I thought was convenient in use, the size of each being excessive. As the matter seemed to hinge on the manner in which the impulse was conveyed round the turn, and the blow with its quality was already at hand in the straight Power mallet, I have, as you will see reduced the size by making use of the segment of a circle of steel to make the turn, the segment sliding in a corresponding groove. The size of the instrument is thus considerably reduced, while the quality of the blow is not impaired. Having used this instrument for some months I can speak from practical experience that it makes solid plugs, and from its small size, has a greater range of positions during use than the larger instruments. It comes near to the size and shape of the hand plugger, and I have not required to oil it since I first used it.

Mr. BALDWIN thought the greatest credit was due to Mr. Humby for the mallet he had shown. Although a number of ingenious people had been at work on the subject for a number of years, no satisfactory right angle mallet had been accomplished hitherto.

Mr. Baldwin read the following notes on a case of an unerupted maxillary third molar causing inflammation in the substance of the cheek simulating epithelioma :—

In November last an old patient of mine, an elderly man of ample build and proportions, came to me with a note from Mr. T. Smith, saying that the bearer had a lesion in the cheek inside the mouth, which presented all the appearances of epithelioma, and asking me to look over the denture, which was a full upper suction plate, to see if it were free from all irregularities and so forth, which might cause irritation.

On looking into the mouth I found the centre of the cheek on the left side occupied by what looked precisely like an epithelioma.

The cheek in the centre, over a space as big as a crown piece, was hard throughout. The external skin was bound down, immobile, and slightly reddened. The mucous membrane inside was hard, nodular and fissured; one large central fissure was raw-looking, granular, and had everted edges, and the induration of the whole was very gristly and characteristic of epithelioma.

From this mass could be felt an ill-defined infiltration extending upwards and connecting it with the maxillary bone. I found myself entirely in agreement with Mr. Smith, that the appearances were exactly those of epithelioma; yet I cherished a hope that the real condition was not such as the appearances indicated, on the following grounds:—(1) That I had had the patient under observation about three months before, and had then noticed nothing unusual about the mouth, whereas now there was what looked like an epithelioma of many months' standing; (2) that the history of the lesion did not tally with that of epithelioma in that the first symptoms had been severe pain and immense swelling of the side of the face, the onset of which had been only about a fortnight before; (3) that there were no lymphatic glands to be felt in the submaxillary region.

A local medical practitioner in the country had treated the swelling by twice opening into it with a lancet from the inside of the mouth in the centre of the cheek, but no pus had been found. The incisions accounted for the deep fissure in the centre of the mass as it existed when I first saw it, but not for the fact that the fissure was still unhealed, and presented raw and granular surfaces and edges which were indurated and everted.

A fortnight later I received a letter from Mr. Smith, asking me to assist in examining into the whole matter with the patient under an anæsthetic. The patient was fully anæsthetised and the examination commenced. The cheek was distinctly better; the part was more mobile, the track of induration extending upwards towards the maxilla was less easy to be felt, and the mass itself was somewhat smaller and softer.

Mr. Smith drew my attention to what appeared to be a small stump, just showing as a tiny point at the extreme back of the maxillary alveolar process on the left side. On examining this with a pointed probe the characteristic feeling of enamel was at once recognised, and a buried third molar was diagnosed.

The conclusion was arrived at that this might be the cause of the whole trouble, and it was promptly extracted. The extraction was not very difficult, and was accomplished by first cutting away the gum over it by means of a scalpel, and then removing the tooth by means of curved upper molar forceps. The tooth proved to be a fairly well-developed third molar with confluent roots, and presented nothing unusual except a small patch showing pericementitis on the root near the apex. The extraction was not followed by any flow of pus. The subsequent history justified the more favourable diagnosis. No further treatment was considered necessary. In two days' time the improvement was very marked; the fissure in the centre of the mass had healed, the induration was much less, and the mobility of the external skin was fully established.

Three months later I had the opportunity of examining the patient again, and then all appearances suggestive of epithelioma had vanished. The mucous membrane had returned to its normal flaccid condition. It was still somewhat corrugated, but it was also so to a less extent on the other side, and this is due to the amplitude of the tissues of the cheek, and is a normal condition in the case of this patient, who is, as I have indicated, full-bodied in all respects.

The existence of the focus of inflammation in the centre of the cheek, while the cause lay high up in the maxilla, is to be explained, I think, by the deflection of the inflammation downwards and outwards from the root of the tooth by the attachment of the buccinator muscle to the maxilla. The root of the tooth was well above this attachment, and the products of inflammation seem to have travelled down into the cheek from the root of the tooth by the course I have indicated, and then to have occasioned acute inflammation in the centre of the cheek, resulting in the sinister appearances I have described.

The case is of great interest as showing the completeness with which a simple inflammation sometimes may simulate epithelioma, and as exemplifying the advantage which a correct diagnosis may in such a case entail.

Mr. STORER BENNETT said that unfortunately it was not always the case that dental surgeons were called in to give the aid of their expert judgment. In many cases they might render very great assistance. The usual course of procedure in such a case would have been to have diagnosed it as one of epithelioma, and the patient's friends would have received

the terrible news, and some severe operation would have been resorted to. The result would have been that when the operation was in progress the error of diagnosis would be recognised, but then matters to a great extent would be too late. He thought, therefore, that everybody connected with the case was to be congratulated on so successful a termination to it.

Mr. THOMSON and Mr. HUMBY also mentioned cases somewhat similar to that of Mr. Baldwin's.

The PRESIDENT having thanked the members who brought forward communications and the members who had discussed them, the Society adjourned to June 14.

DEMONSTRATION OF PHOTOMICROGRAPHY.*

By G. G. CAMPION, L.D.S.Eng.

Photomicrography, he said, resembled very much in principle the ordinary enlargement of photographic negatives. The microscopic object took the place of the negative to be enlarged, and the microscope that of the enlarging lens, while instead of using paper and producing an enlarged positive they used a plate and produced a negative with a magnified image of the part of the microscopic slides. The apparatus and instruments used were more complicated and the work therefore more difficult.

The lamp, microscope, and camera were all mounted on a heavy base-board, to give solidity and steadiness to the apparatus, for in this and the perfect apposition of the parts success in a large measure depended. For greater convenience in working, the microscope and lamp were placed on a movable platform working on a central pivot attached to this base board. The platform was so arranged that the lamp and microscope (placed horizontally) could be brought exactly in line with the centre of the camera or turned to one side so that the object could be examined with the microscope with comfort and ease, and the necessary adjustments made.

This pivoted platform should have suitable receptacles made

*Given before the Students' Society, Victoria Dental Hospital, Manchester.

for the feet of the microscope, so that they could not move and so that when in place, and the platform at rest against the stop, the instrument was always, when horizontal, in the exact line of the centre of the camera. Having placed the microscope in position, the first step was to centre the light. The flame of the lamp was so arranged that its image was thrown by the substage condenser into the object glass, and by a little focussing it could be seen sharply on looking through the eyepiece, the position of the lamp had then to be arranged, so that the image of the flame was exactly in the centre of the field. The flame was to be placed edgways to the microscope, as more light was obtained in this way. Having focussed the light, the next step was to centre the condenser with low power object glasses; probably the best was a bull's eye lens close to the lamp and about 12 inches from the microscope stage, but with powers ranging from $\frac{1}{2}$ inch. upwards. A substage condenser gave the best results, and where this was used, the quality of the negative depended largely on having it centred to the exact axis of the other lenses. Substage condensers were usually fitted with a metal stop, having a pin hole aperture in its centre, and the condenser had to be moved by the adjustment screws so that this aperture was brought to the centre of the field; the pin hole and top, or cap was then removed so that the full amount of light could pass through. After making these preliminary adjustments the object to be photographed was placed on the stage and focussed, and the moveable platform turned so that the image was thrown into the camera upon the ground glass screen. In working with low powers of from one to four inches it was usual to remove the eyepiece and photograph without it, as better results can be thus obtained when this is done. A tube lined with black velvet should be slipped into the body of the microscope to prevent reflection from the inner surface of the metal, otherwise the image would be blurred and the negative bad. In high power work specially corrected objectives were used with eye-pieces specially made for photography. Where the camera was used extended to more than about 18 inches, the final focussing was done by a long rod connected with the base-board and connected to the fine adjustment of the microscope by means of a fine cord working over a pulley and kept taut by a weight. After focussing approximately on the ground glass screen the latter was removed, and a screen of plain glass substituted for it, and the fine focussing done through a

focussing lens. Although no image of the object could be seen with the naked eye on the plain glass screen, it was readily seen by means of a lens, and the image thus formed was far sharper for fine adjustment than an image on ground glass. Upon the focussing it was impossible to spend too much trouble and pains, even the most expert workers frequently taking half-an-hour on this alone when working on difficult objects with high powers. The focussing being satisfactory, then came the difficult question of determining the length of exposure, and on this point no definite rules could be laid down, as the exposure differed so widely not only with the different magnifications, but also with the differing thickness and colour of the object, that to give any general rule was impossible. Apart from the difficulties of focussing and exposure there were others arising from vibration during the time of exposure, and the colour, fineness, and want of contrast in the object itself. Vibration could be avoided by having the whole apparatus solidly constructed, placing it on a very solid support with blocks of india-rubber intervening, and by being careful not to make an exposure while people were walking about in or near the room in which the work was being done. The difficulties special to any particular object or class of objects could only be overcome by long practice and experience, and by employing various means which had been found useful by experienced workers, and which could be found detailed in books dealing with the subject.

Lastly, the great secret of success was unwearying and constant perseverance. It would never come to the man who took up the work for a few months, but required for its achievement years of steady work and practice.

TIN-FOIL FILLINGS.--In the use of tin-foil you have a material which can be burnished to the walls of the tooth, a metallic, antiseptic lining of cavity walls, the advantages of the absorption of the oxide of tin within the tooth structure, and a filling that will not contract or expand, and which, being a non-conductor, can be used closer to the pulp than other metals.

R. H. Cool, in Pacific Stomatological Gazette.

Dental News.

THE QUEEN v THE COUNCIL OF MEDICAL EDUCATION

(*ex parte* SPERO).

This case came on for hearing in the Divisional Court, before Mr. Justice Hawkins and Mr. Justice Wright, on May 7th. Mr. T. Willes Chitty appeared for Mr. Spero, in support of a Rule nisi for a mandamus obtained against the General Medical Council, requiring the Council to show cause why a mandamus should not be issued directed to them, commanding them to register the name of Mr. Spero under the Dentists' Act of 1878.

Mr. Muir Mackenzie appeared for the Medical Council, to show cause against the Rule; and Mr. R. W. Turner watched the case on behalf of the British Dental Association.

The learned Counsel for and against the Rule, having addressed their lordships at some length, Mr. Justice Hawkins gave judgment as follows:—

I am of opinion that this rule ought to be discharged. The Act in question was passed on the 22nd July, 1878. The sixth section of it provides this: "Any person who (a) is a licentiate in dental surgery, or dentistry of any of the medical authorities; or (b) is entitled as hereinafter mentioned to be registered as a foreign, or colonial dentist; or (c) is at the passing of this Act *bona fide* engaged in the practice of dentistry, or dental surgery, either separately or in conjunction with the practice of medicine, surgery, or pharmacy, shall be entitled to be registered under this Act." It is perfectly certain, when one looks at the facts, which are very short here, that at the time the Act was passed in the month of July, 1878, the applicant, Mr. Spero, was not engaged *bona fide* in the practice of dentistry, or dental surgery, either separately or in conjunction with any other profession, and therefore he was not under section 6 entitled to be registered under the Act."

I can imagine what was in the consideration of the legislature, when they inserted section 37. "There are a number of persons, or there may be a number of persons, who have intended to embark in the profession of dentists, who have become articulated to other persons, and are now carrying out that profession. Their articles will not expire for a considerable time, and in aid of their ambition to enter the profession, it is fair to let them under certain restrictions, be admitted to be registered as if they had been in actual practice at the time of the passing of the Act." Accordingly this section, 37, was inserted into the Act: "Any person who has been articulated as a pupil, and has paid a premium to a Dental practitioner, entitled to be registered under this Act in consideration of receiving from such practitioner a complete dental education, shall, if his articles expire before the first day of January, 1880, be entitled to be registered under this Act, as though he had been in *bona fide* practice before the passing of this Act. Moreover it shall be lawful for the General Council, by special order to dispense with such of the certificates," and so on. The present applicant, Mr. Spero, was articulated as a pupil, and he did pay a premium to a dental practitioner who was entitled to be registered when the Act was passed. He paid his premium for a complete dental education, according to the requirements of this section, and his articles

did expire before the 1st January, 1880, for the articles expired on the 13th October, 1878, so that he was brought entirely within this 37th section. He became entitled to be registered under the Act, as though he had been in actual *bona fide* practice, before the passing of the Act; that is to say, the object of section 37 was to make his articles, if they expired before January, 1880 (his articles being to a regular dental practitioner, and a premium being paid in consideration of his education), put him in precisely the same position, as if he had actually been engaged in the practice of dentistry at the time of the passing of the Act. Being introduced as a person entitled to be registered under this Act in the circumstances I have mentioned, as if he had been engaged in the practice of dentistry, what would entitle a practitioner who was in actual practice when the Act was passed to be registered? That is to be found here in the proviso to the 7th section. "Provided that a person though he is entitled to be registered—" I am reading in these words of section 6, "shall not be in fact registered." I read those words "in fact" here, "under this Act," as having been at the passing hereof engaged in the practice of Dentistry, unless he produces, or transmits to the registrar before the 1st August, 1879, information of his name and address, and a declaration signed by him in the form of the schedule to this Act, or to the like effect." I do not trouble myself with the rest of the section, because it does not arise in the consideration of the case. What reason is there why a person who is put into the position for the purpose of registration, under the 37th section, as though he came within sub-section C of the Act, who is allowed to be considered as if he had been in practice when the Act was passed, to whom an indulgence is given,—what reason is there why he should not be put under the same obligations, as those who actually occupied the position in which the legislature by section 37 placed him? I confess I can see none. The object is that there shall be a declaration by those who are registered under this clause, and that that declaration should give information of the name, and of the address. Accordingly the form of the declaration having been given, it is not to be in the form, or in the words, or in the language of the declaration given in the schedule, but it is "or to the like effect." That is to say, you may suit the declaration to the circumstances, if it requires any adaptation.

Now we come to the declaration itself. I quite agree that in this form without any further explanation of it there might be a difficulty in the applicants' signing it, but it may be framed "to the like effect" of this schedule, by the introduction of two or three words, which my learned brother pointed out, and which I also at greater length pointed out. This is it: "Declaration required to be made by a person who claims to be registered under the Dentists' Act, 1878, on the ground that he was *bona fide* engaged in the practice of dentistry, at the date of the passing of the Dentists' Act, 1878:" I see no reason why this should not be added, "I am an articulated pupil of Mr. So & So; my articles did expire before the 1st January, 1880." That is easy enough to say. I do not follow the reasoning of Mr. Chitty, who says he could not do this, because I think he could, and I think if he had modified the form of the declaration in this way, and sent it to the Registrar, the Registrar would have complied with the statute, as being, not a declaration in the exact form of the statute, but a declaration to the like effect," and therefore he would have complied with the Act.

As the Act has not been complied with, I see no reason why the case should not be disposed of in the way we propose to dispose of it—to say there is no obligation at all now cast upon the Registrar to put this gentleman's name upon the register, because he has not followed the

provisions of section seven, in filing this declaration. Therefore in my judgment the rule will be discharged.

Mr. Justice Wright: I am of the same opinion, None of these questions on the statutes where a matter was not thought of by the framers of the clause are easy to determine, or ever quite satisfactory to determine; but on the whole it seems to me that the natural meaning of the language used is that persons claiming to be entitled under 37, must submit to have their claims on all the same conditions as the conditions applied by section seven to the third class of persons mentioned by section six. Here the applicant has been under no difficulty, and he could perfectly well have sent in a declaration with the necessary amendment, within the specified time.

I wish to say that I express no opinion whatever as regards other persons whose articles having expired in the last five months of the year 1879, would have found themselves in the position that they could not conform to the requirements of the statute, as regards the date of sending in the declaration. This one could have done it quite easily.

Mr. R. W. Turner: It will be discharged with costs?

Mr. Justice Hawkins: Yes.

Mr. Chitty: As the question is one of importance to many people, may I ask your lordship to stay as regards costs if we appeal within a reasonable time? Of course we shall not do so without being so advised.

Mr. Justice Hawkins: There is no necessity to apply to be allowed to appeal; there is no necessity for us to give you time.

Mr. Chitty: I am asking for a stay of execution.

Mr. Justice Hawkins: Why should there be?

Mr. Chitty: It means a double taxation of costs, and a good deal of difficulty. If we lose we may just as well tax both the costs.

Mr. Justice Hawkins: Suppose we were to say we would stay execution for a fortnight. and in a fortnight there is no appeal we should have given time, which we ought not to have given you.

Mr. Chitty: A fortnight will not be very much harm.

Mr. Justice Hawkins: I do not know whether it will or will not. That depends upon the circumstances generally.

Mr. Justice Wright: Is there any objection?

Mr. Turner: If there is an appeal lodged within a week or a fortnight we do not object.

Mr. Justice Hawkins: By consent you can do it easily. You can abstain always.

Mr. Turner: I will consent, my lord.

Mr. Chitty: I will take my learned friend's statement that there will be no taxation if we appeal within a fortnight, until that appeal is heard.

SUPREME COURT OF JUDICATURE.

In the Court of Appeal before the Master of the Rolls, Lord Justice A. L. Smith and Lord Justice Chitty, the case of the *Queen v. the General Council of Medical Education and Registration*, came on for hearing on the 1st. inst. Mr. Willes Chitty (with him Mr. Bigham, Q.C.) appeared for Mr. Spero and Mr. Muir Mackenzie, and Mr. Lindsey Smith appeared on behalf of the General Medical Council.

This was an appeal from a decision of the Queen's Bench Division (Mr. Justice Hawkins and Mr. Justice Wright).

The proceedings were taken by Mr. Isidore Spero for a *mandamus* against the General Council of Medical Education commanding them to place his name upon the Dentists' Register. The prosecutor was article in April, 1875, to a duly qualified dentist, to whom he paid a premium of £30, and from whom he was to receive a complete dental education. The period of his articles expired in October, 1878. In July, 1878, the Dentists Act was passed. Section 6 of that Act, by subsection c. provides that every person shall be entitled to be registered under the Act who "is at the passing of this Act, *bona fide* engaged in the practice of dentistry or dental surgery." Section 7 provides that a person shall not be registered under subsection c of section 6 unless he produces or transmits to the Registrar before August 1, 1879, information of his name and address and a declaration signed by him in the form provided in the schedule of the Act, or to the like effect. Section 37 provides that "any person who has been article as a pupil and has paid a premium to a dental practitioner entitled to be registered under the Act in consideration of receiving from such practitioner a complete dental education shall, if his articles expire before January 1, 1880, be entitled to be registered under the Act as though he had been in *bona fide* practice before the passing of the Act." The prosecutor claimed for the first time to be registered in 1888, and the council refused his application on the ground that he had failed to make the declaration required by section 7 within the time mentioned—that is to say, before August 1, 1879. The question was whether the requirement of section 7 applied to persons who claimed to be registered under section 37. The Divisional Court held that it did so apply, and refused to grant a *mandamus*. The prosecutor appealed.

The Master of the Rolls, in giving judgment said it seemed to him that the whole matter was a disagreeable one, and that a dentist was a very disagreeable person. But the Court had to construe the Act of Parliament as it was written. If section 37 were not in existence the case of Mr. Spero would be hopeless. Was he, then, a person within section 37. It appeared to him that he was. Then it was necessary to consider what was the effect of his being within that section. Was it that he was to be entitled to be registered under the Act. Not so; it was not so large as that; but he was to be entitled to be registered "as though he had been in *bona fide* practice before the passing of the Act:" therefore it was not a simple declaration that he was entitled to be registered, but only so far as registration was concerned that he was to be in the same position as though he had been in *bona fide* practice before the passing of the Act. That led to the consideration, what would be his position if he had been in *bona fide* practice before the passing of the Act. It was said that he would be under section 6. That was not simple; because after being entitled to be registered one had to see how he was to be registered. That was provided by Section 7, which said that if he did certain things he should be registered unless he came

within the proviso, which said that although he had fulfilled the requirements of Section 6 and the first part of section 7, he was not to be registered unless he produced to the Registrar before the 1st of August, 1879, a declaration signed by him. Mr. Spero had not produced such a declaration, and therefore he could not be registered. The words were plain, he had not done what he was plainly bound to do, and therefore he was not entitled.

Lord Justice A. L. Smith said the section limited the date before which a person must produce to the Registrar the documents named. Mr. Spero could very well have sent in those documents with a declaration "to the like effect," that was, modified to fit his case, between October 13th, 1878, when his articles expired, and the 1st of August, 1879. He had not done so, and the appeal must therefore be dismissed.

Lord Justice Chitty said that the declaration was to be in the form set forth in the schedule "or to the like effect." It had been argued that Mr. Spero was a pupil, and could not have made a declaration in that form; but the words "to the like effect" justified the Court in saying that the declaration might be modified to suit the facts, and that that was the meaning of the Legislature. The qualification was not intended to be a stale one which might have become altogether useless; the person must be a *bona fide* practitioner—that was beyond all question. According to Mr. Spero's case he could have delayed for ten or twenty or thirty years before making his application, he could have engaged in all kinds of business having nothing to do with dentists, so that his hand might have been put entirely out of the work, and yet he could have claimed that he was within the Act and was a duly qualified person. The good sense of the case as well as the reasonable construction of the Act of Parliament was entirely against such a view.

The Appeal was dismissed with costs.

GENERAL MEDICAL COUNCIL.

DENTAL BUSINESS.

Mr. Bryant, as Chairman of the Dental Education and Examination Committee, brought up the following reports:—
(1) On the Inspection of the Qualifying Examinations of the Royal College of Surgeons of England and the Royal College of Surgeons in Ireland; and (2) on the Qualifying Examinations in Dentistry.

Dr. Watson moved:

That the recommendations of the Committee on Dental Education and Examination, together with the reports on the recent inspection of the four bodies granting diplomas in dentistry be sent to those bodies for their consideration, with a view to their expressing their opinions on the same, and such opinions be brought before the Council at its November

sitting, before the Council comes to a decision on the recommendations of the Committee.

Mr. Bruce seconded the motion, which was agreed to.

Mr. Bryant said that a paragraph in his draft report had been objected to by his colleagues on the Committee, and he had toned it down; but he thought it might be brought before the Council. "The Committee cannot too strongly urge upon the General Medical Council to so influence the Royal College of Surgeons in Ireland as to induce them to give up as speedily as possible examining *sine curriculo* candidates." He should be glad, as the Chairman of the Committee, to make the proposition as it stood.

After some conversation, Mr. Bryant said he would defer his resolution till the replies had been received from the bodies.

Dr. McVail asked Mr. Bryant how the two bodies, the Royal College of Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow could form a Conjoint Board as suggested, there being no power under the Dental Act for them to do so, though there was such a power under the Medical Act.

Dr. Rentoul maintained that power was given under Section xxviii of the Dentists' Act of 1878.

The Chairman said that no doubt the Bodies referred to would allude to the matter in their answers to the Council, now that attention had been drawn to it.

The Council then adjourned.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

The following papers were set in the Final Examination for the Licence in Dentistry in May, 1897.

Dental Surgery and Pathology.

Mr. Stack and Mr. Baker.

(All questions to be attempted).

1. On the assumption that the age of 11 years is the usual time for the eruption of the right upper canine, discuss the question of treatment of caries, not involving the pulp chamber, of the mesial surface of the right upper temporary canine at the ages of—first, 8 years; secondly, $10\frac{1}{2}$ years; thirdly, 17 years.

2. State the chief reasons that would weigh with you in determining to remove, or not to remove, a hopelessly decayed right second lower temporary molar at the age of 8 years.

3. What tricks of early childhood are held to be responsible for producing irregularities of the teeth? Describe the characteristic deformities produced by two such tricks.

4. An exposure of the pulp occurs in excavating. Discuss, very fully, two different methods of treatment, stating how, when, and where, each should be employed.

5. State accurately what is meant by the following terms, used in connexion with dental caries:—

- (a) Liquefaction focus.
- (b) Non-infected zone.
- (c) Tobacco-pipe appearance.

Dental Mechanics.

Mr. Bishop and Mr. Yeates.

(All the questions to be attempted).

1. What means is there at our disposal for the replacement in the human mouth of—

- (a) Lost teeth;
- (b) Lost alveoli, or parts thereof;
- (c) Lost palate, hard and soft, or parts thereof?

2. Describe how you will produce a duplicate of a vulcanite piece.

3. How do cast-iron, steel, and wrought-iron differ in their composition and properties?

4. In repairing, how would you replace a broken soldered tooth on a plate on which some other teeth are already vulcanized?

5. How would you regulate the length of springs in a complete upper and lower denture?

ROYAL COLLEGE OF SURGEONS IN IRELAND.

DENTAL EXAMINATION.

The following Candidates having passed the necessary examination, have been admitted Licentiates in Dental Surgery of the College:—F. W. Sievers, (Worcester); and E. Thistlewood, (Warwick).

DENTAL BOARD OF VICTORIA.

At the ordinary monthly meeting of the Board, held at the offices in Collins Street, Melbourne, on the 26th March, the new members—Dr. Salmon, M.P., and Mr. Arthur R. Clarke—took their seats, and were most heartily welcomed.

Mr. Kernot moved, and Dr. Mullen seconded, that Dr. Springthorpe be elected President of the Board for the ensuing year, which was carried unanimously.

Mr. George then vacated the Chair in favour of the new President, who in a few appropriate words thanked the Board for the honour conferred upon him.

The arrangements for the forthcoming examinations were then completed. In this connection an important opinion was received from the Hon. the Attorney-General, that students, in order to secure the pass, must pass in all the subjects at one and the same examination.

A large amount of correspondence was dealt with, and the Board adjourned.

WHAT a man of to-day needs most is not athletics in a gymnasium, but plenty of fresh air in his lungs. Instead of a quantity of violent exercise that leaves him weak for several hours afterward, he needs to learn to breathe right, stand right and sit right. The young man or young woman who starts on a career of training and keeps it up year and year, just at the time when the body has a great deal of its own natural work to do and wants to do it, may make up his or her mind that beyond a showy and superficial development of muscle and strength, all this training in after life is going to count against them.

Annals of Hygiene.

Formula for root canal filling, tooth-lining and pulp-capping :

R	Cellular shavings	...	...	1 oz bottle $\frac{1}{4}$ full.
	Ether	...	...	2 drachms.
	Alcohol	...	...	1 drachm.

Add a few drops of ethereal oil.

Max. Sichel, Pac. Stom. Gazette.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester
during the month of MAY, 1897.

Number of Patients attended	659
Number of Extractions	589
Number of Extractions under Anæsthetics	251
Gold Stoppings	146
Other Stoppings	179
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	73
Gold and Porcelain Crowns	21
Inlays	
Total	1918

OSWALD TIDSWELL, *House Dental Surgeon.*

A solution of hyposulphite of sodium in water will remove iodine spots from linen, cloth, skin, in fact, from everything, almost instantly. The fresher the spots the quicker the action of the hyposulphite.

J. C. Emmering.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only, and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

Twelve Months (post free) 14s. od.

Post-office Orders to be made payable at the Langham Place Hotel Office, to G. E. Skliros, 289 & 291, Regent Street W. A single number sent on receipt of seven (penny) stamps.

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VOL. XL.

DENTAL MECHANICS.

By HARRY ROSE, L.D.S., Eng.

PART IV.—APPLIANCES AND DEVICES FOR THE CORRECTION OF DENTAL IRREGULARITIES.

Considering a work on dental mechanics as incomplete without some reference to guide the student as to the nature, structure, and object of the appliances used for the treatment of dental irregularities, the author is led in this section to bring before his readers some of the devices he has found most useful, both in hospital and private practice; and while he does not lay claim to any originality of treatment, he would try to draw attention to those simple forms of appliance that are most likely to be worn and tolerated by the patient, thus conducing in a great measure to the success of the operation.

There is no branch of our art that calls for the exercise of mechanical skill and ingenuity in a greater measure, than that devising the means whereby one can transform an irregular and crowded condition of the teeth, and malformed dental arches, into perfect order and symmetry. Very few of these cases are alike in detail; each requires, as it were, to be studied and treated on its own merits. For the means to be adopted one must be guided by several very important considerations.

The first is to ascertain the willingness of the patient to submit to the various little troubles incidental to the treatment and the co-operation of the parent or guardian is also essential to ensure that the instructions given by the dentist are carried out in an intelligent manner.

The next business is a careful inspection of the mouth and to determine which teeth to retain and which to remove ; we must also well consider if the teeth we propose to remove might be made useful for anchorages prior to so doing.

Having taken the impressions, and cast the models, we have now to consider the nature of the plate or appliance.

Experience teaches us that the simpler these devices are, provided they effect the purpose they are intended for expeditiously, the more likely they are to be worn faithfully by the patient. The first consideration is, that they should not encumber the mouth so as to prevent the patient masticating his food ; the second is, that for hygienic reasons they should be easy of removal so as to be kept scrupulously clean ; and the third, that there should be no chance for the patient to insert them wrongly.

As the majority of the cases of dental irregularity are due to a contracted condition of the dental arches, the operation of spreading or expanding these arches becomes one of the most important operations one has to perform. We have in these cases a crowded condition of the teeth, some overlapping the others, some perhaps crowded out, either inside or outside the alveolar ridge, but in each case, if our object is to make the teeth assume their normal positions in relation to the others, we must in the first place make room for them, by using some appliances that will keep a sufficient pressure on the inner sides of the alveolar borders that will enlarge or spread them to the extent necessary.

For expanding a contracted arch, one of the most effective and simplest methods is to use a split vulcanite plate joined

together by a screw running in two german silver tubes vulcanised in the substance of the rubber. As these tubes are usually covered by the vulcanite, german silver of the best quality will be found a very suitable material to make them of ; there is a further advantage in using this material, that it can be procured in sizes such as we require for the purpose.

In order to make these appliances, it is necessary to provide ourselves with a screw plate and taps. Armed with these, we first run a thread on a piece of german silver wire about an inch long. The next process is to tap the tube, this may be accomplished by taking a piece say about one and a half inches long, into one end of which a piece of wire is placed ; we can now hold the tube firmly in the vice without danger of crushing it, during the process of tapping. The steel taps for doing this can be conveniently held in a small hand vice, and then screwed with a to and fro movement into the tube, using plenty of oil.

When a sufficient length of tube has been tapped, the german silver screw should be screwed into it to ascertain if it works smoothly, it is then removed and the tube sawn through with a fine saw into two equal parts, these are then replaced on the german silver screw, and the screw and tubes filed or cut to the length required. A few irregular marks



Fig. 1.

with a file will be sufficient to retain the tubes in an upper vulcanite case, but in a lower when the screw and tubes are prepared, wings of german silver are soldered to the tubes.



Fig. 2.

These wings should be close to the necks of the teeth as far at the distal extremity of the anterior molars.

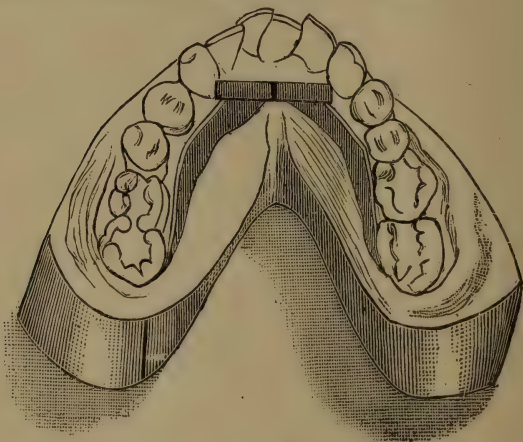


Fig. 3.

When soldering the wings on it is safer to withdraw the screws from the tube or else lubricate it with a little whitening to prevent its being fastened to the tube. The screw and tubes may be gilded prior to insertion in the vulcanite if thought necessary.

The advantages of a screw such as described are, that it retains its steadiness and usefulness much longer than those inserted in vulcanite without the tube, and also, when the plate has been expanded to the extent of the screw, it can

still be partially unscrewed from the opposite side of the case to allow for further expansion, or a new and longer screw can be inserted without making a fresh case. Being covered by the vulcanite, there is nothing to interfere with or to cause irritation to the tongue.

It has the still further advantage that one can, with safety, send the patient away for four or five weeks, if necessary, after giving instructions for the unscrewing of the plate about every four days or as often as the pressure can be tolerated.

(To be continued).

BRITISH TEETH ON THE DOWN GRADE.

By CHAS. FOX, L.D.S.

CAUSE 2.

It is difficult to name any one cause of sufficient importance by itself to rank alongside the fivefold increase in the use of sugar during the present century. I will therefore couple together the insufficient quantity of milk in the dietary of infants and young children; and the undue proportion of starch foods.

Some statistics are impossible to collect, but the general statement that "bottle babies" are on the increase, and those fed from the maternal fount decreasing, will scarcely be contradicted. The old joke of the food reformer who told his audience that he made the most physical and mental progress during one year of his life when he lived entirely on milk may be repeated, if only to emphasize the fact that milk and that alone should carry us through the first year of life.

Failing Nature's home supply, cow's milk, diluted and sweetened is used; but only those who have worked in the

out patient rooms of a large hospital can imagine the stuff and messes the poor unfortunate infants of ignorant parents have in place of milk. "Anythin' we 'as ourselves; a bit o' cabbage, a sup o' tea and taters" as one experienced matron, who had "buried five," remarked.

Although 87,000 cows are doing their best for London, only $\frac{1}{4}$ pint per day is the average used by each inhabitant. This, of course means far less in the poorer districts. In the Cleveland ironstone district, it works out at less than one-tenth of a pint, and in scores of rural, even pastoral neighbourhoods, milk cannot be obtained for love or money.

During the bone- and tooth-forming periods, nothing will serve as a efficient substitute, and perhaps more depends on the quality of the original tooth substance than any amount of care in after life.

To arrive at a decision as to the natural and best food for man, let us glean a little in other fields. Our cousins from marmoset to anthropoid ape, find in fruits and nuts a sustenance that at all events produces perfect dentition. Place them, however, in confinement, and feed on sopped bread and cooked foods and they also develop caries. One of the most comically pathetic sights was to be seen at the Zoo the other day when a wizened old monkey sat apart from his fellows, groaning and nursing his aching jaw. Man, like his nearest relative, is evidently of tropical origin. There, before even the stone age, when he made flint instruments, and long before the bronze and iron age, when cooking utensils were possible, he regaled himself on bananas, apples, pineapples, dates, figs, and possibly borrowed a few birds' eggs, and the flesh of any animal within his power. But it was not until long ages after, that, emigrating northwards and finding, cereals and pulses had to supplement the smaller nourishment of our acid fruits, he learnt all our lecturers tell us of the value of heat in the preparation of starch foods.

That the world must feed on wheat as its staple diet is often accepted as a truism, but the fact that bananas feed 60 people to the acre against a possible five under wheat culture, is worth remembering. Some day, perhaps, our superexcellent milling machinery, which produces that tenth rate diet, white flour, will pass away and the sweet fruits of the tropics form the basis of our national food. Already tens of thousands of tons of bananas, the richest nitrogenous fruit, are consumed here, and no better addition to a child's bill of fare can be named than a few of these daily. Sugar as we found, is craved for, and it is because man's natural food, human milk and tropical ripe fruits, contain it in such abundance; but elaborated as no refiner on earth can do.

A few years ago Dr. Densmore threw a bomb shell among the vegetarians by a series of articles against the use of all starch foods. He showed very cleverly the unsuitability of starch for man's intestines, how the stomach simply has to act as passer-on, and its vital forces are wasted; how the teeth are directly exposed to decay by the presence of such readily fermenting particles, and the arteries prematurely aged by the undue proportion of earthy salts in cereal foods. Better meat than wheat, better milk and eggs than potatoes and rice, best of all ripe, raw, fruit and nuts.

From a dental point of view (and in a general way what is right there is right for the whole body), a perfect diet for children would be about as follows: Milk for the first year; milk plus ripe bananas, dates, etc., for the next period; and an occasional egg for the next period; and as the stress of life's work requires extra supplies, add meat, butter, cheese, nuts, (the finest things for mastication) and let bread, potatoes and puddings take a place far away at the end of the list.

The burden of cooking is no slight one in modern life, and for cereal foods it is imperative. But I know of many families where the cooking range is scarcely ever used, and their tables

are the most attractive of any. This is no Quixotic tilting against windmills, but a steadily advancing weight of scientific opinion that man to regain his full physical development and endurance, his length of days and absence of disease, must retrace in matters of diet many weary steps. He must borrow from the tropics, if he lives in Northern climes, many food stuffs to enrich his native menu, and allow a few milling machines to be idle while he masticates his fruit and nuts unaided, and while thousands of cooks and confectioners look out for other work.

REMOVAL OF MYELOID SARCOMA WITHOUT SACRIFICE OF BONE.

Mr. Charters Symonds, at the Clinical Society, showed a boy; æt. 15, from whose lower jaw he had removed a central myeloid sarcoma on January 20th, 1896. The tumour had destroyed a large portion of the jaw, only a bridge of bone being left on each side of the middle line. The tumour passed back under the tongue and was removed by erosion without sacrifice of bone, leaving the lower border of the jaw as well as a bridge of bone along the alveolar process. There had been no recurrence and the patient has now a firm bony jaw.

ATTACHMENT OF LOGAN CROWNS.--Having prepared the root and obtained proper fit of crown to root end and correct articulation, smear the end of the root with a varnish of rosin and chloroform, and place in position a gutta-percha washer. Cover the crown with oxide of zinc in powder, warm it and force it into the gutta-percha, trimming off all excess. This secures perfect adaptation of crown to the root end.

P. W. Onderdonk, Southern Dental Association.

British Journal of Dental Science.

LONDON, JULY 1, 1897.

ON THE CARE OF THE TEETH.

Are we, as dentists, doing all that lies in our power to instruct our patients in the care of their teeth? We think we are well within the mark when we say that in the one item of cleaning the teeth alone, not twenty-five per cent of our patients keep their teeth as clean as they ought. The front teeth on the labial surface are usually in a fair state, though as a rule the condition of these is susceptible of improvement, but the labial surface of the molars and the lingual aspect of the lower incisors are generally found in a state the reverse of hygienic. Are we capable of supplying our patients with a prescription to suit the varying conditions of various mouths, or do we allow them to use any and every proprietary article they choose, the composition of which is totally unknown to them and to us, and the ingredients of which may be useless or even harmful?

We consider that it is the duty of the dentist not only to place the mouth in the best possible condition of health, but also to give the patient full instructions regarding what they should use and how to use it. The tooth-brush should be of good stiff bristle, allowed to soften in water for a moment before use. Soft brushes, especially those of badger hair and indiarubber should never be recommended. They are chiefly used by those who have puffy and spongy gums and we may be sure as long as they are employed the gums will get no better. Patients complain that a stiffer brush makes the gums bleed. That is just what they require, and the congestion and bleeding will be cured by increased friction. The

brush for the inside of the teeth should consist of a tuft of bristles on a bent handle so that the bristles can fit well down to the gum. We are firmly convinced, after considerable experience, that the majority of tooth powders are too smooth and impalpable. This is more particularly the case with patients who are disposed to deposits of tartar. The only chance the patient has of coping with this deposit, is to remove it in the early stage when it is soft, by friction. A proportion of, say, one in four, of finely levigated pumice stone may be prescribed with perfect safety, and powdered soap, one in eight or ten is a useful adjunct, with precipitated chalk for a basis and a few minims of carbolic acid.

The brush for the upper teeth should have a concave curve and have the bristles shorter at the point, so that the brush may have full scope to penetrate between the cheek and the posterior molar teeth—a favourite site for caries. The toothpick as a means of cleansing the teeth is of great value if properly used. It should be as small and fine as possible, those usually sold are much too large and clumsy. Waxed floss silk is also useful, especially between the front teeth and directions should be given the patient to be careful, in using this and the toothpick, not to wound the gum. For spongy gums an astringent mouth-wash should be prescribed. Tannin, although excellent, tends to discolour the teeth after continuous use, tincture of myrrh, rhatany or cinchona, are perhaps better.

It is a mistake to suppose that a sweet, pleasant, aromatic preparation is necessary. Our first thought ought to be to provide a preparation which is cleansing and preserving. All sweet and fermentable substances should be rigidly excluded. Most tooth-pastes therefore should be condemned, as they are made with honey or some such material, which is not beneficial but rather the reverse. It is difficult to persuade many patients to remove their artificial partial dentures at night, but it is our duty to try and persuade them, pointing out the risks to their natural teeth. The denture should be placed in water, in which a little washing soda has been dissolved, until the morning. If they insist

on wearing the plate, extra hygienic precautions should be observed, the clasps and the natural teeth surrounded by the clasps receiving special care. Parents should be instructed to provide children with tooth-brushes at an early age and see that they are used. They should also be warned that the six-year-old molar is a permanent tooth, as it is often mistaken for a temporary one and allowed to decay. We should impress upon our patients the importance of periodical inspection. Every six months is a safe rule in the majority of cases. The risks of delay should be plainly pointed out with its attendant trouble to ourselves, and pain and expense to the patient. Symmetrical extraction at the proper age, if necessary, should be resorted to, and the ignorant prejudice of parents against it combated with all the means in our power. Our duty, if carried out honestly, is no slight one, and though not always pleasant, will in the end produce the respect of those who consult us and result in mutual satisfaction.

IS DENTISTRY A NECESSITY IN THE EYES OF THE LAW?
—Two cases which have recently come before our notice make us arrive at the conclusion that the services of our profession are not considered a necessity by the legal mind, at least not in all cases. An action at law was tried before the Supreme Court of New York, in which it was decided that filling and regulating the teeth of a minor was not a necessity and that the parent need not be liable. In the case of extraction for the relief of pain, however, the dentist became a necessity and his fee would require to be paid. The other case relates to artificial teeth. Judge Wynne Ffoulkes heard an action the other day by an Atherton dentist for moneys due in respect of an artificial set of teeth supplied to a minor, and held that "the contract could not be enforced under the Act, artificial teeth not being a necessity." Common-sense would have decided that as Nature considered teeth a necessity, their substitution after loss would come under the same heading. But common-sense

and law are frequently at variance. It therefore behoves dentists who perform operations for minors, to assure themselves of the consent of the parents and guardians of their young patients.

THE CO-OPERATIVE MOVEMENT.—The following overture has been addressed to a number of Glasgow dentists by the manager of the Coatbridge Co-operative Society, Limited :—
“I have been thinking we might with mutual advantage, become agents for your supplying our members, numbering over 3,000, with teeth. I will be pleased if you can see your way to do business with us. Your early reply stating the best terms you are prepared to offer will oblige, &c.” We believe that this system has been in vogue for some time with some of the London Co-operative Stores, though how it works we do not know. We suppose there is always a large number of people who will buy their dentistry like everything else on the cheap. But with the majority of respectable practitioners, this class of patient is disliked and they will wish the Stores joy of them.

TEETH AND THE LAY PRESS.—One is struck by the increasing allusions to teeth and their ailments in the lay press, especially in the cheap weekly magazines, devoted to catering for the taste of the million who prefer to absorb their mental pabulum in a light and assimilable form. Though the mistakes in these articles are often ludicrous, yet the general tendency of them is to warn the public of the danger of delays and to advise them on the hygiene of the mouth. We believe the American public is far ahead of us in the care of its teeth, and this was smartly emphasized the other day in a conversation we had with an American lady. She had been informed that American dental diplomas were not recognized in Great Britain, and asked, “Is it true that American dentists are not recognised in this Country,” We admitted that such was the case. “Well,” she said, “I

could not believe it at first, but after I had noticed the teeth of people out here, I felt sure it was the truth." We felt that to a certain extent the reproach was deserved. We shall improve in time.

TOOTH PASTE AND CYCLES.—The ingenious devices of shifty mortals to gain a livelihood at the expense of their more credulous fellows are often brought to light in our law courts. The latest alleged dodge is by a certain company which advertised largely that the purchasers of the New Imperial French Tooth Paste—post free 1s—who solved a certain problem, would receive a bicycle as five of these vehicles would be given away. The public, of course, sent its shillings. A pot of toothpaste alone is not dear at the price, and when it is a French Imperial article, with the chance of a cycle thrown in, the chance seems too good to be missed. Among the competitors was one who waited in vain for his tooth paste, so he communicated with the police, who searched the house of the advertiser but found neither paste nor cycles. The prisoner has been committed to Quarter Sessions, his plea that he was going to buy the cycles and had a recipe for toothpaste, seemingly not bearing much weight with the Court.

THE RECENT DECISION IN SCOTLAND.—The decision in *Emslie versus Paterson*, recently given in the Justiciary Appeal Court of Scotland and printed in this number, is a grave blow to those who are fighting the battle against the unregistered advertiser. We hope to comment upon it at greater length in our next issue.

WHAT RULES THE WORLD?—Sir Henry Acland relates a story of his attendance on the lectures of Dr. William Buckland the great geologist. Dr. Buckland had in his hand a huge hyena's skull. He suddenly dashed down the steps, rushed, skull in hand, at the first undergraduate on the front bench, and shouted, "What rules the world?" The youth,

terrified, threw himself against the next back seat, and answered not a word. He rushed then on Acland, pointing the hyæna full in his face, "What rules the world?" "Haven't an idea," he said. "The stomach, sir," he cried (again mounting his rostrum), rules the world. The great ones eat the less, and the less the lesser still." This is as true of nations as it is of the animal world. The greater have always eaten the less, until physical and moral decay, the result of luxury, have made them the prey of nations with more sinewy arms and hungrier stomachs. We hope that the decay of our nation's teeth is not the precursor of enervation and decrepitude. It is not a thought to be lightly dismissed.

PYORRHOEA AND DIET.—Dr. F. Sibley, in a paper read before a Dental Society in Rochester, N.Y. gives it as his belief that pyorrhœa is more a constitutional than a local manifestation. His idea is to prevent the formation of deposits by controlling the diet and combating any perverted condition, especially that of the liver. This he would do by stimulating the liver with mercury in small doses, and by the regular use of natural mineral waters. Alcohol, saccharine and fatty matter must be used very sparingly, and the patient must take plenty of outdoor exercise and daily baths with the use of the flesh brush and Turkish towel.

My theory for several years has been, in reference to obtunding sensitive dentine, that the best method is to have clean, sharp burs, steady hands, an engine revolving at a moderate rate of speed, but running steadily, telling the patient you are going to hurt him a little, and then doing the work deftly and quickly. Up to the present time I have not found anything that I would trade off for my sharp, up-to-date instruments, deftly handled.

Dr. Osmun, International Dental Journal.

Abstracts of British & Foreign Journals.

PYORRHOEA ALVEOLARIS A CENTURY AGO

By WILLIAM H. TRUEMAN, D.D.S., Philadelphia

Berdmore says, in 1770, treating of a condition which we readily recognize as pyorrhœa alveolaris of to-day, "The treatment is partly medical and partly surgical. The former consists in removing the original disease of the whole body by a due course of medicine, and in washing the mouth frequently with antiseptic and astringent liquors, rendered slightly acid by means of orange, lemon, or sorrel juice or vinegar. The surgical treatment consists in scarifying and pricking the affected gums, and destroying their tender outer skin in such a manner as to occasion a fresh shooting forth and elongation of their substance, and such a solidity as will endure the usual impressions of mastication. When the gums have lost their connection with the teeth, or when they do not embrace them closely, cutting a small slip away from the forepart is of considerable service, for the new gum will then adhere to the tooth, or at least will embrace it more closely." During the time necessary for completing the cure in this manner opiates, solution of camphor, or a few drops of nitrous ether in common spirits may be used to mitigate or remove the pain. He explains that sometimes one will give relief, and at other times the other. He recognises the importance of first thoroughly cleaning the teeth of all deposits, and states that the scarifying or cutting of the gum may have to be frequently repeated. He relates a case where "the incisors of both jaws were entirely naked to the extremity of each root," that required five or six operations, stating that after a perseverance of six weeks the gums were completely restored, and have remained sound ever since by the assistance of astringent washes and brushing. Berdmore claims that when the patient will submit to the necessary treatment and follow closely his directions, the surgeon-dentist will seldom fail of success in cases of this kind. Teeth that are very loose, or badly injured by caries, he recommends should be extracted, that being for such teeth, the only cure.

This close identity of the latest suggested treatment of

pyorrhoea and that in vogue so long ago is quite suggestive, and well deserves careful attention. I say, in vogue so long ago, for Berdmore does not claim this treatment as his; indeed, it seems to have been the common practice long before his advent into the dental world.

Unanimity of experience in treating this disorder seems to have been in that day, as in this, sadly wanting. Robert Wooffendale, writing in 1783, referring to the treatment recommended by Berdmore and to the case Berdmore especially reports, says, "Such cases I have frequently seen, but never cured one, or saw one of the same kind, or anything like it, cured by any other person." He further says, "Lancing the gums, to prevent the scurvy in them, is with some people a fashionable operation, and which they have performed regularly once a month; some once a week, or oftener; supposing it will prevent or remove all complaints of the gums, teeth, and their connections. By observation, however, this operation performed in such manner by no means proves such expectations well founded. The operation, frequently repeated, may be lucrative to the operator; but in my humble opinion is of little, if any, advantage to the teeth or gums of the patient." He recommends to prevent this condition the daily use in the morning of an astringent lotion, taking care to have any small portions of tartar that may adhere to the teeth under the edges of the gums removed by the instrument of a careful dentist, and the frequent use of a proper dentifrice so as to keep them as clean as possible. When this treatment is strictly attended to he believes the disease will very seldom make its appearance, and in recent cases it is generally sufficient to prevent its further progress.

When through long neglect the disease has made progress, but not yet reached the incurable stage, it is generally proper, he says, "to lance the gums, and sometimes to repeat it daily for a fortnight, a month, or longer. When the gums are much thickened by this disorder considerable portions of them should be cut off, which in many cases I have done, and the patient has not been sensible of the least pain till the operation has been repeated several times."

Robert Wooffendale was a student of Thomas Berdmore. I note here and there throughout his book a disposition to give his preceptor a sly rap now and again. I note also, in dental literature of recent date, this disposition is still manifested by some of our profession who fail to see matters in the same way their brethren do. I still further note that this disposi-

tion at times is a serious clog to real progress, in that it provokes antagonism, fosters an unreceptive spirit, and prevents that bringing together, careful sifting, and equitable comparison of our varied experiences, by which process alone can they be made practically useful.

Berdmore considered this disorder curable, even when it had far progressed, and claimed as part of the cure a reproduction of lost tissue. Wooffendale claimed that it is usually curable, so long as there remained embedding the roots of the teeth enough tooth-supporting tissue to securely hold them. He contends that to restore to health the disordered tissues is all that can be expected; and both agree that to retain them in this condition requires constant care and continued watchfulness on the part of the patient. Wooffendale further says, and this with emphasis, "When the exposure of the root is occasioned by accident, as a bruise, a cut, or the like, it will frequently be readily restored by Nature, generally without the assistance of art, but when the smallest part of the roots of the teeth are exposed, in consequence of the adhesion of tartar on them, by the scurvy in the gums, venereal infection, or the imprudent use of mercury, I never saw the least disposition of the gums to grow to the teeth, although assisted by scarification, or by stimulating, balsamic, astringent, or any other sort of washes or applications; the gums would as soon grow to a piece of ivory or iron as to the root of a tooth which has lost its periosteum from any of the causes here alluded to." Jourdain writes dolefully of this disorder and says, "Those who think they have made cures by scarifications, etc., by cautery, issues, and the like, have confounded this with suppurative fungus of the gums alone. I have seen many cases treated by these so-styled successful remedies, and I may safely say I have yet to see the first cure performed."

How very like the remarks in reported discussions on this subject, in this year of grace eighteen hundred and ninety-six are these, culled from writers of more than a century ago, writers of more than a century ago, writers who were well conversant with, and who have accurately described, this and other allied disorders of the teeth and gums, that in their day, as in ours, in spite of their efforts and in spite of our efforts, result in a much to be deplored tooth loss. With them, as with us, whether these disorders were merely local, or were wholly or in part systemic, was a much debated question; indeed, a careful study of the accurate and full records they have left makes one ponder and prompts the question, What do we know of these disorders that they did not know?

A SUMMARY OF MY EXPERIENCE WITH CATAPHORESIS.

By L. L. BARBER, D.D.S. Toledo, O.

About six months ago I commenced to keep a record of cases operated upon with the different cataphoric apparatus, with a view, if possible, of establishing some guide to its future utility in dentistry.

1st. What cases are most favourable to its use?

2nd. What kind of medicaments were most efficient by its use?

3rd. What conditions were especially unfavourable to its use, etc.?

My record covers a little less than one hundred and fifty cases, and they have been so varied that without a correct record as to age, class of teeth, size of cavities, where located, susceptibility of patient to electricity, the noting of fear from pain, when able to do so, amount of time consumed for every case operated upon as compared to the approximated time it would have consumed without it, etc., I do not see how one could hope to arrive at anything like a true deduction as to whether cataphoresis is a benefit to them in the broad sense of the term or not. To me the keeping of a record has proved very instructive as well as interesting, and may prove so to some of those who are contemplating the use of some of the many cataphoric appliances upon the market.

It is probably a fact that any of the apparatus made for the purpose will transfer medicaments to deep-seated tissues. There is a difference, however, in the amount of pain produced by some over others, even with the same amount of current and at the same pressure. It is very necessary that the operator have perfect control over the current. Just how this is to be done I will let the electricians settle. However, I have found the current with some apparatuses very much more under control than with others.

Some patients are so sensitive to electricity that it is almost impossible to get enough current to carry the anæsthetic into the dentine without producing more pain than the patient cares to stand even with the most sensitively-controlled instrument. I have found some such cases for which I could find no other reason than these persons' natural susceptibility

to the electrical current. On the other hand, many cases will be found which, to the beginner, might appear to be in the same class, but which, when better understood, can be attributed to various other causes, among which my record of cases show the following :

First, persons who are frightened. I have quite a number of cases on record where one, two, and in one case, as many as three attempts were made, at different sittings, before the patient could be brought to an understanding of the difference between the cold and slight pricking sensation attending the application of the electrical current, and pain. One case, upon which the third unsuccessful trial was made, now will not have a tooth filled without it. I have attached a report of this case. This case was a boy of eleven years. I think he did not experience anything but fear the first three times. One of the other very bad cases was not fear, for I found the person could feel my pulse, so to speak, so susceptible was she to electricity. I fastened the anode to the clamp upon the tooth, and that trouble was over. Another trouble I had when using 110-volt current was, every now and again I thought the patient was going out of the fifth-story window. Finally I discovered that just before he was about to take his departure he would take hold of the iron bracket, arm or some metal part of the chair and so form a ground connection. That was something I was pleased to be able to avoid in the future. Even with a dry-cell battery you may find this same trouble, being due, as I believe, to some imperfection in some one or more of the cells. It is better to have each cell tried separately before connecting up, and thus be on the safe side.

Deductions show that very hard teeth are more tedious to control, and very much more time is required to produce the desired results owing to the fact of there being less animal matter, therefore, more resistance, and unless you are very careful you will put on pressure, or rather voltage, enough to produce pain by heat. Therefore keep the cavity wet (not the whole tooth), and do not try to get good results in a case of this kind as quickly as in a soft tooth.

Large labial cavities, according to the records kept, show, possibly, a larger per cent of satisfaction than any other class. Those large, extremely painful, and exceedingly difficult labial cavities in the incisors and cuspids have been, in my hands, very satisfactory. However, in almost all classes of cases where the cavity was accessible and the condition of

the pulp nearly normal, the work has been quite satisfactory.

The anæsthetic solutions that have been used by the writer include; hydrochlorate of cocaine in various strengths, from 4 per cent up to 30, 50 and even 75 per cent. Guaiacol, which is one of the phenols, is not as much of an escharotic as is creosote, of which it is an extract. But experiments tend to show that guaiacol has a coagulating action, and, therefore, does not permit of all the anæsthetic properties of the cocaine being brought out. By the use of most of the solutions of cocaine I have failed to get the phenomenal results that some have claimed.

Eucaïne was used in quite a number of cases. I do not think, however, that better results were reached, except the anæsthesia produced proved to be more prolonged, if that could be claimed an advantage.

The solution with which the most satisfactory results have been obtained, according to the record kept in my office, is a 30 per cent alcoholic solution of cocaine, or rather cocaine is soluble in alcohol one to three and one-half parts.

In looking over the records I find cases covering youth, manhood and old age, male and female, persons who were very susceptible to electricity and those who were *vice versa* persons who were scared all but to death and those who were not frightened at all, persons upon whom it worked charmingly and those upon whom it did not work at all, except in a way one did not desire to have it. But the alcoholic solution of which I have spoken has the best record.

The cases recorded substantiate the therapeutic axiom that the degree of reaction is proportional to the degree of vitality, the greater the vitality the greater the reaction. Hence, any departure from the normal would retard the action of the cocaine solution used. So that, in a general way, it may be said that any condition of the pulp that lowers the physiological tone of it, will retard, not only the absorption of the cocaine, but also make the tubule fibrils and pulp harder to anæsthetize. Cocaine is a nerve-paralyzant when brought in contact with it, and then only. So, when used in a tooth without a nerve-exposure, we can hope for the anæsthetic effect only by the current carrying it through the tubuli. So, the ideal result will be less in proportion to the amount of lowering of the physiological tone of the fibrils.

My records show that dentine is anæsthetized primarily over the radius covered by the positive pole, because the current passes in the course of least resistance toward the

apex of the root, through the tubuli and pulp canal. Thus, the larger surface being covered by the positive pole, the greater will be the surface obtunded. It is only secondarily that all of the dentine can be obtunded, but one can, by using a disk of metal over the saturated cotton, and then placing the platinum point upon the disk, get a larger current-covered surface, and thus secure better results. I hope and believe that there will soon be a better preparation for use in connection with the electrical current.

Messrs. Parke, Davis & Co. are now experimenting, and hope soon to give us something better than we have for this purpose.

We may expect the effect of drugs introduced into the dentine to be more lasting, owing to the absence of active fluid circulation there than in soft tissues.

Since writing the above I have had two cases I want to mention: One a boy twelve years of age—distal cavity in right superior central incisor and mesial approximate superior right lateral incisor. Both were extremely sensitive; by fitting a piece of platinum wire extending into each cavity and ten minutes' application of a current reaching 20 volts, I prepared both cavities with perfect comfort to the patient, and, mind, this was not a case of "cure worse than the disease," for there was (according to the boy), not the least pain during the process of obtunding. The other case was a man forty years of age, practised law for some years, had nervous prostration, left his profession but has never fully gained control of his trouble. Most of the teeth he has lost has been on account of their extreme sensitiveness and his inability to stand the nervous shock, not on account of anything else. On November 25th I operated upon the right second molar, it having a posterior proximal cavity, very much under the gum but not extending to the occluding surface. It also had a shallow but large buccal cavity mostly under the gum. It was impossible for me to prepare those cavities, so sensitive were they, and I could not get at them to apply cocaine with the current, so I drilled a small hole into the occluding surface, and applied cocaine and current, and in twenty-one minutes was able to clean both cavities painlessly. The gentleman said it was entirely satisfactory during the application and excavation.

Dental Register.

ON CANAL FILLING.

By J. FOSTER FLAGG, D.D.S. Phil.

Nearly twenty years ago (*Cosmos*, November, 1877) I wrote: "It has been decided that a pulpless tooth is far better than no tooth, but it is equally decided that sooner or later, subject to a variety of contingencies, trouble will probably develop, and that it behoves every practitioner to so act as will best provide against the occurrence of this probable evil."

The added nineteen years of experience has but thoroughly confirmed this opinion, and has made warnings to my classes only the more positive and the more emphatic.

This, in turn, brings us to the consideration of other than reasons for the *filling* of canals and pulp cavities, as it is seen that probable need of *unfilling* may exist; therefore it is that I would give you as of importance:

First. That canals should be filled with medicaments, non-poisonous, non-irritating, soothing and of long continued antiseptic power, and that these should be introduced in fluid, semi-fluid or paste form, or, when possible, upon a vehicle which absolutely maintains its integrity.

Second. That the fillings should fill as perfectly as possible in order that while maintaining anti-sepsis it should aim to preclude, as much as possible, the ingress of moisture.

Third. The filling should be easy of introduction, not that this is an essential, but that, everything else being equal, it is certainly desirable.

Fourth. That it should be easy of removal, which attribute while it is of but little moment at the time of filling, becomes of *paramount importance to the patient*, if, in the course of time, it means the long continuance of suffering, or the affording of comparatively prompt relief.

The medicaments of which I can best speak are those which I have longest used. In my experience no others have been more satisfactory than the oil of cinnamon and the oil of cloves as antiseptics, and the acetate of morphia and sulphate of lime as paste makers. For some of the medicaments, which, at suggestion, I have used in canal work, such as creasote, oily carbolic acid, bichloride of mercury and salicylic acid, I can only say that I have entirely discarded them

while for iodoform I have but scanty words of praise, and most infrequent use.

The modern medicaments, such as eugenol, campo-phenique and fluo-silicate of soda (sodium-silico-fluoride) have made excellent records during the last decade, but these must do many years of good work before they can be ranked as *better* than those that have already done from twenty to thirty years service.

For the newest and most extensive line of germicidal antiseptics, with all their ingenuity of manufacture and compounding, with all their comparative tests of merit and their long lists of testimonials, we can but say that the same long and careful trials as have been given to the "old reliables" must be given to them before their value can be positively established, while it certainly cannot but be noticed that most of those who testify enthusiastically are those who have no long record of continuous methods but who are disposed constantly to favour new things.

Notwithstanding the occasional assertion of a few that they enter, extirpate from and fill to the extremity of even the finest and most tortuous canals, I think that it will not be disputed that we, of the large majority, do not do so.

There are three usual grades of canals; those which are accessible, large, easily entered, and which can be explored to their ends without difficulty; those that are yet accessible, but which are small, not easily entered and which it is always difficult, and sometimes impossible to satisfactorily explore, and finally those which are much less accessible, almost or quite impossible to enter, and absolutely impossible to explore for any distance, either on account of fineness or tortuosity.

Besides these there are yet other canals, which, although neither inaccessible nor small, are found in roots, the shapes of which preclude the possibility of following by either drill, broad or finest and most flexible probe, not only in the mouth but even with the teeth extracted and in the hand.

I have shown so many of these in clinics that their existence has come to be a matter of course, exemplified not only by excessive tortuosities, but even more markedly by the "bayonet" and "adjunctive" roots, the canals of which latter frequently open at right angles into the canals from which they diverge, thus rendering it not only impossible to follow, but equally impossible to know of their existence until after the extraction of the teeth.

And yet it is with these, as with the others, that we some-

times have to deal, and it is not infrequent that we find such complications associated with the very teeth which we most desire to save.

For the filling of the most difficult and most unsatisfactory of these canals I should suggest the most searching, soothing and *permanently antiseptic* medicaments, such as oil of cinnamon or cloves, eugenol and campho-phenique, and for probational purposes such medicaments as electrozone, borolyptol and solutions (two to four per cent.) of formalin, not as curative, but as prophylactic treatment.

For the filling of the less difficult and yet not satisfactorily prepared canals, I would again suggest pure medicinal fillings, in order that the greatest amount possible of some material that may do some good shall be introduced, but I would also suggest that a longer continuance of benefit may be assured by greater consistency of material, and for this purpose I employ "pastes" of varying degrees of inspissation, composed of acetate of morphia, sulphite of lime, antipyrine, or fluo-silicate of soda softened by oil of cloves or cinnamon or campho-phenique, and probationally, balsamo del deserto, or even salol.

For the filling of the accessible, large and easily entered canals, it is found better that a vehicle for the introduction of the medicament should be used, for the double reason that a sufficiency of antiseptic can thus be placed, and that a better preventive to ingress of fluid can thus be provided.

It was early noted that the "pinhead pellets" of cotton, which atmost always preceded the excellent gold canal fillings of the earlier operators, if removed for relief to subsequent periodental trouble, came forth permeated with the odour of creasote or cloves, or tainted with the odour of putrefaction from remaining portion of pulps, as the extirpation had been more or less thorough but in either case, its *structural integrity seemed* perfect.

I argued that if this was maintained in pellet form it might also be in form of taper-twist, and, therefore, used natural cotton (not absorbent) as the vehicle for medication and the taper-twists were gradually increased in size until each almost completely filled its canal.

In normally formed roots this material was found, by experiment, to subserve nicely, the purpose of excluding moisture, and in cases of large foramina or unformed roots a portion of base-plate, and in later years, temporary stopping, was incorporated with the small end of the taper-twist, and being

warmed, was pressed into place ; the cotton was medicated and packed firmly as usual.

Year after year has increasingly demonstrated the wisdom and utility of this practice, as hundreds of teeth thus treated grew into thousands, and the thousands into more than ten thousand ; and of these, treated and re-treated quickly, easily and comfortably during the past thirty years, I do not know of *fifty* which have been lost.

It is now twenty-four years since, desiring acceptable, corroborative testimony regarding the maintenance of integrity of the vehicle which I was using, I submitted removed cottons of five, six, seven and eleven years' service to Professor Joseph G. Richardson, M.D., then microscopist at the University of Pennsylvania. The following was his report :

PHILADELPHIA, May 16, 1872.

Professor J. Foster Flagg, D.D.S.

DEAR SIR :—On examining the portions of cotton which you handed me in your office, and which you informed me had been imbedded beneath plugs, in the fangs of teeth, for five, six, seven and eleven years, respectively, I found that single filaments unravelled from the middle and each extremity of the last of these fragments (entombed eleven years ago) when investigated both dry and wet, under powers of 220, 440, 1200 and 2400 diameters, displayed clearly the ordinary structure of cotton fibre and *exhibited no evidence of disintegrative change.*

The other pieces, similarly inspected, were likewise apparently unaltered.

Very respectfully yours, etc.

(Signed)

JOSEPH G. RICHARDSON, M.D.

“Cotton canal filling” has been to me and mine a blessing beyond computation ; having given it to a patient and having explained its “why and wherefore,” I feel that I have clearly intelligently and “thoroughly” done my duty, in that I have done well, as shown by clinic experience, not only for the present, but that I have provided, in the best possible degree, for years of comfort, and vastly more than this, for *prompt relief bestowed most gently*, in the event of future trouble.

Items of Interest.

TEETH.

Authorities warn us that our teeth are perishing—in fact, we can see it—generally feel it—for ourselves. The time is not distant, they say, when children must be provided with a “false set,” as soon as they shed their infantile equipment, or they will be early victims to indigestion. The worst of it is there is no reasonable hope of improvement. All savages have good teeth—not only handsome, but strong ; all civilised people have them more or less bad. This does not apply to modern times only. A President of the British Dental Association, the late Mr. J. R. Mummary, made a careful examination of the ancient skulls preserved up and down in this country, and published the result. Among those assigned to the Stone Age he found no single instance of irregularity, “and a very striking infrequency of decay.” The succeeding races, which used bronze, appear to us sufficiently barbaric. But there was already “a marked increase of caries,” though the faultless regularity remained. The Roman conquest followed, and forthwith it was registered upon the skulls. Frequent contraction of the jaw displaced the teeth, and the proportion of caries rose about a thousand per cent. But the English invaders restored a healthy state of things ; both irregularity and disease became very uncommon once more. A similar investigation in France, Italy, and the United States has given the same result. For some reason, by some means not yet adequately explained, civilisation appears to change the very form and structure of the teeth. In skulls of the earliest races both in this Island and elsewhere, the teeth of old people are often worn down actually to the gums, doubtless by eating grain pounded in the quern or on stones ; a fine grit would be constantly mixed with the meal. If modern teeth were subjected to that ordeal, long before they had been ground flat the nerve would be exposed, with doleful consequences ; but we understand that there is no trace of inflammation in any of the antique examples, much less of decay. Nevertheless, civilisation has always been able to make a fight against the tendency. We are apt to think that the dentist’s science is quite modern, because our grandfathers knew so little of it. They had not yet reached the level of the old Greeks, Etruscans, and others. In the Museum at Athens, one may see skulls in which the teeth are neatly stopped with gold ; the same at Veletri and

Bologna, where the contents of Etruscan tombs are stored. In Egypt the science of dentistry was more advanced an indefinite number of centuries ago than in our grandfather's time. Even the Peruvians could put in a false tooth. There are several specimens at Quito, secured by golden wire to the cheek-bone, which was bored for the purpose.

Ancient writers report that Pyrrhus had no teeth ; yet he never felt the want of them, for the bone of either jaw pushed beyond the gum, making a perfect substitute. Strangers did not remark anything unusual, however, for the smooth surface was scored in lines, exactly imitating the division of teeth. Plutarch declares that this also was natural, but we should like to have the evidence of the hero's valet-de-chambre on that point. Similar cases are mentioned in antiquity, as a king of Cyprus and a king of Bithynia, according to Pliny. He names, also, "Euryphæus the Grecian," who had a solid upper jaw, and teeth in lower apparently. Herodotus also describes a skull thus deformed picked up on the battle-field at Platæla. Owen discovered the fundamental law of nature which enables an expert to declare the form and organisation of any animal by inspecting its teeth ; these antique mortals would have puzzled him. The stories are not to be dismissed, we understand, as mere fable. Though these extreme instances have not been paralleled, a tendency of like sort is observed sometimes. Barbaric fashion finds endless opportunities for its vagaries upon the teeth. In a book of African travel comparatively old like Du Chaillu's or Burton's, which takes due account of such matters, whenever a new tribe is mentioned its peculiar method of disfigurement is noted. Here they knock out the incisors, there the canines ; here they file their teeth to a point, there they grind them down level with the gums, and so forth. The spread of Islam is repressing these eccentricities. In the late campaign we heard nothing of that peculiarly delightful trick among the Foulah women which Laird described. In his day they stained their teeth alternately blue, yellow, and purple, leaving one unadorned here and there by way of contrast. But Islam has not persuaded the Malays to cease blackening their teeth. In parts of the country where they have been familiar with white men for generations they are still convinced that black is the only wear for a human being ; pigs and dogs have white teeth they say. Among the skulls in Dr. Davis's collection was one from Borneo, in which the six front teeth had been

drilled through, and a pin with a neat brass head inserted. Marco Polo describes the custom of Zardandan, where people cased their teeth with gold ; and his account is certainly true, for it is mentioned in Chinese annals, though the custom has long been extinct. We are reminded of a portent which convulsed Central Europe three hundred years ago. It was rumoured throughout Germany that a child had been born in Silesia with a golden tooth. The story "caught on," as they say. That something tremendous was going to happen no one thought of disputing ; parish priests and others exercised their ingenuity in arguing what it could be. So great was the popular agitation that the Imperial Government ordered an inquiry, which confirmed the rumour. Happily Dr. Horst, Professor of Astronomy, and eminent in his day, took the matter in hand. He showed that the Sun was in conjunction with Saturn under Aries at the birth of this fated child. Therefore his golden tooth presaged a Golden Age at hand. This pleasant explanation satisfied everybody.

To declare that any particular superstition is the most grotesque on record would be very rash. Those competent to speak upon the subject would demand a year for consideration, and then would refuse to pronounce ; but it is quite safe to assert that a notion which prevailed for three centuries at least upon this matter of teeth could not be beaten for stupidity. During that space of time—very much longer, no doubt, but we keep within the limits of the evidence—all Christendom believed that men (and women, of course), had only twenty, twenty-two, or twenty-four teeth. This is strange enough, but, to crown the absurd marvel of it, we see that they were perfectly aware of the normal proportion. In fact, the point of the superstition lay there—the number had been reduced by miracle. The first mention of this belief occurs in Rigord's "Chronicle of Philip Augustus," which is as early as we could expect ; but the notion may have been much older. Rigord says that "since the True Cross has been sacrilegiously seized by the Turks children have only twenty or twenty-three teeth instead of thirty or thirty-two which they had before." Other dates and other causes were assigned for the phenomenon at various times and by different peoples—as the capture of Constantinople, and, in England, the visitation of the Black Death. But the fact was universally admitted long afterwards as an historic incident. Fuller repeats it in the Seventeenth Century. He says in his "Holy State," "We read that all those born after

the beginning of the great mortality in England in 1349 wanted their four cheek teeth." There is something like a parallel to this imbecility in the belief that men have one rib less than women, which was current when people not yet old occupied the nursery—doubtless it survives to the present day. But the cases are not really alike. Only the long ribs can be counted in a healthy body, and few mortals who would care to verify the assertion have a skeleton at command. But every boy can reckon up a comrade's teeth, and often does. Moreover, skulls of people murdered or executed littered the ground throughout those ages. All who examined one of them attentively must have seen that it had thirty-two teeth, or sockets for that number. But superstitious fancy triumphed over the evidence of eyesight for centuries.

Evening Standard.

TO TAKE AWAY ODOUR OF IODOFORM.—All persons using iodoform know how difficult it is to remove its odour from the hands or from instruments. Use spirits of turpentine on the hands or instruments ; it can be added to water, and in using soap makes it very efficacious.

Le Progres Medical.

A HARD DRILL can be made by heating to a cherry red and cooling in mercury.

DENTISTRY IN THE WORKHOUSE.

Prestwich Board of Guardians, at their meeting on Thursday last week, discussed whether dentistry in the workhouse was a luxury. The medical officer, on being asked to extract patients' teeth, stated that he was not a dentist, and Dr. Husband observed that if the Board insisted upon the medical officer pulling teeth he would feel rather sorry for the patients. Dentistry was not part of the curriculum of a medical man. The board ultimately agreed that whenever the doctor had a case in which a tooth required extracting he should have power to call in a dentist.

British and Colonial Druggist.

Dental News.

GENERAL MEDICAL COUNCIL,

Wednesday, May 26th.

SIR WILLIAM TURNER, (in the absence of SIR RICHARD QUAIN),
in the Chair.

DENTAL EDUCATION AND EXAMINATION.

Mr. BRYANT: It may be in the recollection of the Council that at the termination of the last Session there were four Reports on the Qualifying Examinations in Dentistry that were then presented to the Council. Only two were read and discussed; the other two, and the final Report on the whole four, had to be postponed for this year's consideration. My duty now is to bring before you the Report of the two Qualifying Examinations in Dentistry as carried out by the College of Surgeons, England, and the College of Surgeons, Dublin, together with a Final Report upon all four. I propose, firstly, to move, "That the Report on the Inspection of the Qualifying Examinations in Dentistry of the Royal College of Surgeons of England be received and entered as an Appendix to the Minutes.

Mr. BRUDENELL CARTER seconded the motion.

Mr. BRYANT: In this Report of course there is a great deal, and I do not mean to trouble the Council with reading it, because it will be referred to in the Final Report on the four Bodies. I would suggest that the Council should reserve any criticisms they may have to make until I come to the Final Report, when the Reports will be dealt with as a whole, because you have to deal with two former Reports that were entered on the minutes last Session. In the Report of the Royal College of Surgeons of England you will see the remarks made by the Visitor Inspector, and I propose to read them.

"The general conduct of the Examination, the scope and suitability of the questions asked, and the methods of marking adopted, leave little to be desired, and I have hardly any suggestions to make for their amendment. With regard to the question of marking, it might, perhaps, be better to emphasize more strongly the opinion of the Examiners where Candidates do very badly, and to make more use of the power to reject a Candidate upon any one portion of his examination in which he is very deficient, which at present seems to be but rarely done. But, on the other hand, it is very unusual for a Candidate to do very badly in one section of the Examination and yet to do sufficiently well elsewhere to make up his deficiency of marks, so that I did not observe a single instance of a Candidate passing whom I personally should have been tempted to reject on any one part of his examination. Thus, against one I had noted in his oral examination in General Surgery, 'Very poor all round, ought to be rejected.' He was given the minimum, but failed upon his total marks. It would, indeed, have hardly been worth while to say anything upon this subject were it not that the marks given for Practical Dental work being, quite rightly, higher than those for any other part of the Examination, it may be possible for a Candidate, who has done exceedingly well in this section, to pass, notwithstanding his showing gross ignorance in some other section of his work. Conversely

it has been known to happen, though but very rarely, that a Candidate, who should certainly have been rejected upon his practical Examination, has made up his deficiency of marks by quite exceptional excellence in his theoretical work. At the Royal College of Surgeons of England there is but one Examination."

I will omit what he then says because the Visitor Inspector was not aware at that time that the Rules of the College of Surgeons were being altered; and so he is here criticising the old Rules upon which the Examination was conducted. Since then the Examinations have been conducted in another way; so that his criticisms, although they are very satisfactory,—and it would give me pleasure to read them,—are really hardly applicable, because they are applicable only to a condition of things that does not now exist.

Dr. HERON WATSON: He says so in the next paragraph.

Mr. BRYANT: That will also explain the "Remarks of the Body Inspected:"—"On July 15th, 1896, the Council of the Royal College of Surgeons of England informed the MEDICAL COUNCIL that it did not appear to them that the *Report* of the Inspector on the Dental Examinations called for any *Remarks* on their part, as the only recommendation made by the Inspector for any change had been met by the new Regulations for the Dental Diploma, approved and adopted by the Council of the Royal College of Surgeons on July 9th, 1896."

We now come to the Report by the Dental Education and Examination Committee.

"The Inspector points out that before the Dentists' Act was passed in 1878, the Royal College of Surgeons of England granted a License in Dental Surgery so early as 1860, and that prior to that date no special qualification in Dental Surgery had ever been granted by any Licensing Body in Great Britain. He reports also that since 1860 1,094 Diplomas have been conferred; and that at the present time 712 Licentiates of the English College appear upon the Dentists' Register; this number constituting half of the Dentists registered as possessing a special Dental Qualification, and 14·4 per cent. of the total number of Dentists admitted to the Register; the remaining 76·2 per cent. of Registered Dentists representing those admitting those admitted on the ground of their having been in practice prior to the passing of the Act of 1878. He likewise notes that of the 712 Dentists Registered as holding a Licence of the English College, 94, or 13·2 per cent., possess full Medical or Surgical Qualifications. He states that for the last five years the average number of Dental Candidates has been over 100 per annum, and of these about one-third have been referred."

Every Candidate is examined under a number, and every part of the Examination is conducted in the presence of two examiners. No examiner has any cognisance of the marks given by other Examiners at another table. The marks obtained at each table are handed in to the Secretary, who enters them in a book, and the Candidate stands or falls absolutely upon the addition of his marks—33 being the minimum required out of a maximum of 55. Every rejected Candidate is required to produce before his admission to re-examination, a certificate of three months' additional study at a General Hospital and a Special Dental Hospital. The Inspector reports that the general conduct of the Examination, the scope and suitability of the questions asked, and the method of marking adopted, are not only sufficient but leave very little to be desired. He thinks, however, that the Examiners should emphasize more strongly than they do their opinion when Candidates do very badly at any one portion of their Examination in which they are very

deficient. He recommends that instead of the single Examination which is now held, the Examination should be divided, and that Candidates should be examined in Elementary Chemistry and Metallurgy as applied to Dental Art, some understanding of these subjects being quite essential for the intelligent practice of Dental Surgery. The Council of the Royal College of Surgeons of England have no remarks to give to the Report of the Inspector, which they regard as satisfactory, but forward a copy of their new Regulations for the Dental Diploma, which were approved and adopted by the Council of the college on July 9, 1896, in which it will be seen that the Recommendations contained in the Inspector's Report have been met. It should be noted that the new Regulations adopted by the College on July 9 were the outcome of Recommendations of the Board of Examiners in Dental Surgery, considered in May, 1895, and were not the result of the Visitor's Inspection, although the Council were pleased to find that they coincided with those of the Inspector. The Committee regard this *Report* as a valuable one, and ask the Council to bestow upon it their close attention. The alterations which it contains in both the curriculum and course of examination appear to be in the right direction, and your Committee believe that many are worthy of adoption.

That Report was written on November 26th 1896, to present to the last meeting of the Council, but, some of you will remember that before the Council separated, an instruction was given that these Reports should be handed back to the Council with a view of seeing if a fresh arrangement might not be made in the curriculum, because the original curriculum laid down by this Council had been adopted and followed up to the present time.

The motion was then put from the chair and carried.

Mr. BRYANT: I now rise to move—"That the Report on the Inspection of the Qualifying Examinations in Dentistry of the Royal College of Surgeons in Ireland be received and entered as an Appendix to the Minutes."

Mr. BRUDENELL CARTER seconded the motion.

Mr. BRYANT: I shall deal with this Report in a similar manner to that in which I dealt with the last, and I will not read it all. There is a good deal in it well worthy of perusal, and I trust that the members have perused it. The remarks of the Inspector (Mr. Charles S. Tomes) are as follows:—

"As to the First Professional Examination I have none to offer. As to the Second, I have already mentioned that the Practical Mechanical might be advantageously extended, and the Oral associated with it omitted as a separate part of the Examination. A somewhat wider question, however, arises. The *sine curriculo* Candidate does not have to pass the First Professional Examination at all, but is at once admitted to the Second, which is eminently practical (even as to the questions asked at the Oral), and appears to me to be rather too much modelled upon the probable requirements of the *sine curriculo* Candidate. Moreover, when once he has obtained his Diploma he is not ear-marked in any way, but is indistinguishable from the *cum curriculo* Candidate, from whom attainments of a higher order (*i.e.* a knowledge of the subjects of the First Professional Examination) are demanded. This seems barely fair to the *cum curriculo* Candidates, who have so far been very few, as only 14 (2·6 per cent. of the whole number), have obtained the Diploma. As an argument in favour of the present regulation, it is urged that the *sine curriculo* Candidate receives no further legal rights than he already possesses, and does come under the control of the

College in the conduct of his practice as regards advertising, &c. Moreover, that if required to pass both Primary and Second Professional Examinations, he would probably not come up at all, and so would not come within the control of the College. But it is a matter for serious consideration whether, if the *sine curriculo* Candidate is to be admitted for any longer period, he should be granted a diploma upon such much easier terms than the *cum curriculo* Candidate. Very little knowledge of Dental Anatomy, none of the Anatomy of the Head and Neck, and practically none of the Surgery of the mouth was required of the *sine curriculo* Candidates, and whilst I regard the Examination test as applied to the *cum curriculo* Candidate as fully satisfactory, as he has to pass both Primary and Final Professional Examinations, I have some doubts about the adequacy of that to which the *sine curriculo* Candidate is subjected.

With regard to the general question of methods of marking, the more I have seen of the percentage system and its practical application in the making the Candidate pass each subject separately the less I like it. In my judgment it is better to let the Candidate pass by a total aggregate of marks, so that excellence in one direction may cover slight deficiency elsewhere, and thus to enable an examiner to give to a weak Candidate, whom he hesitates to then and there reject, a mark somewhat below the pass proportion, which at present he cannot do fully. Thus a Candidate may be weak in every part of his examination, so that his Examiners would have liked to give him something less than a pass proportion of marks, and yet would have hesitated to reject him absolutely on any single portion or subject. In my own experience I have met with many Candidates who would stand in this position, and who in their total addition of marks would fall far below the pass standard, but who would probably have been passed in separate subjects owing to the hesitation of an Examiner to summarily reject on one subject alone. Such a Candidate will certainly be the better for a further period of study. Of course the power to reject a Candidate upon any one subject, or upon any one part of his Examination, should at the same time be retained; it is also to be remembered that the system in vogue at the Irish College is better than that in which each portion of the Examination (*i.e.* Paper, Oral and Practical Examination) stand quite alone and separate, in so far that it does give to the Examiner an opportunity of giving in one section of a subject marks less than the pass proportion, without then and there rejecting the Candidate; unless, indeed, it be in the Practical part, and it is quite right that this greater importance should thus be given to the Practical part as being the most searching. My suggestion is therefore that the Candidate (unless rejected summarily upon any part) should pass or fail upon the total aggregate of his marks, retaining however the feature, which appears to me a good one, that a deficiency of marks in the Practical portions of the Examination cannot be made up elsewhere. And should this suggestion meet with approval, I think that in the proportion of marks a preponderance should be given to the Practical Examination in the Final Professional, which lasts a whole day, but which at present carries no more marks than the Paper, nor than the fifteen minutes of Oral Examination. This, however, would only become feasible were a recasting of the general plan effected, in the direction of making the Candidate pass by a total aggregate of marks. And whilst retaining, of course, the power to reject upon either the operative or mechanical portion of the Practical Examination, I would extend to this the system of aggregate marks, by marking the Practical Examination as one whole."

Now we come to the "Remarks of the Body Inspected." I may

inform the Council that the whole of this Report, with the Remarks of the Inspector, was sent to the Council of the College for their criticism, so that they had the whole material before them.

The Report of the Inspector was remitted by the Council of the Royal College of Surgeons to its Dental Examiners for their remarks. The criticisms of the Examiners were duly laid before the Council, and adopted by them as their reply, as follows:—"Taking up page 19 of the Report, the Dental Examiners wish to draw attention to the fact that the Oral Examination alluded to in the last paragraph on that page by Mr. Tomes was an Examination on Orthodontics, and not in General Mechanics. It was an examination arising out of a case of which the student had been asked to take an impression and to take notes in the earlier part of the day, and it is meant to be more or less parallel to the method of conducting a Clinical Examination in the Medical and Final Examination. The Candidates were not taken out from their practical test in the work-room to be examined in Orthodontics, and the Dental Examiners cannot agree with Mr. Tomes that it is advisable to take a Candidate away, either from his practical operative work or his practical mechanical work, in order to examine him orally. They think such an interruption may seriously hamper the Candidate in these practical tests. As regards the Examination in Practical Mechanical Dentistry, the Examiners were, as Mr. Tomes states, seriously hampered by the number of Candidates and the unfinished state of the Dental Hospital premises. It has all along been the aim of the College of Surgeons in Ireland to make this mechanical test very thorough, and, in fact, the Irish College has been considerably in advance of the other licensing bodies in this particular; but as the Dental Examiners have not before them the reports of the examinations from London and Edinburgh, they have no means of comparing the examinations recently conducted by these corporations with that at which Mr. Tomes was present here. In referring to the last paragraph but one on page 19, they find it stated that the Candidates were given zinc models and dies to make, bands to make and fit, crowns to strike up, wire to draw down, &c. This covers a good deal of the ground of Mechanical Dentistry, and of course it is impossible at one Examination to ask a Candidate every detail and method of mechanical work. However, the Examiners are of opinion that the strain on the Candidate is too great when he is kept the whole of the first day, first at the difficult operative work for some four hours, and then some three hours at hard mechanical work, and they suggest, as an amendment to the present arrangement, the following change of times for such examinations:—

Thursday.

- | | |
|-----------|--|
| 9 to 9.45 | Candidates are allotted cases of irregularity—they make notes and take an impression of one such case. |
| 10 to 2 | Gold filling. |
| 3 to 6 | Papers. |

Friday.

- | | |
|---------|--|
| 9 to 10 | <i>Viva voce</i> in Orthodontics. |
| 10 to 2 | Practical Mechanical Examination. |
| 3 | <i>Viva voce</i> in Dental Surgery and Dental Mechanics. |

At the conclusion of this Examination the marks are made up, the result declared, and the successful Candidates sign their names, &c. As regards the question whether Candidates should be admitted *sine curriculo* or not, the Examiners are of opinion that the College of Surgeons is right in adopting the policy of admitting *sine curriculo* Candidates to that Examination. It is suggested by Mr. Tomes in his Report that it is hardly fair to the *cum curriculo* Candidates that these older Dentists

should be admitted to the Examination *sine curriculo*. The Examiners are of opinion that in the case of men who are already on the *Register*, and who have the right to practise Dentistry, and who are of considerable standing, or an average of at least ten years' standing, and who have shown their anxiety to join the reputable side of their profession by giving up advertising, the College exercises a wise policy in giving them the opportunity to improve their position. The Examiners believe that this policy of the Irish College, by which it has gained a control over above a tenth part of the legitimate Dentists of the United Kingdom, has done a great deal to advance Dentistry towards becoming a reputable profession. In short, they consider the arguments in favour of continuing this policy far outweigh those for abandoning it. As regards the suggestions contained on page 23 of the Report, the Examiners think it would be inexpedient to allow a Candidate to make up largely for deficient knowledge in one practical subject by obtaining high marks in a different practical subject. The Examiners think that the diploma of the College of Surgeons is meant to be a guarantee to the public that the man who has it is able to do for the public either mechanical work or Dental operative work; and if this is the meaning that the College attaches to its L.D.S., they think it would be dealing unjustly with the public if it permitted a man to pass who was seriously deficient in a fair knowledge of either of these branches of his profession. With these considerations before them, and fully agreeing with Mr. Tomes that additional weight should be given to the practical portion of the Examination, the Examiners have agreed to advise the following modification in the marking at the Final Dental Examination:—

Final Dental Examination.

Dental Surgery and Pathology	-	-	Practical	-	200*
"	"	"	Written	-	100
"	"	"	Oral	-	100
Dental Mechanics, including Dental Metallurgy,			Practical,		200*
"	"	"	Written		100
"	"	"	Oral		100

A Candidate must (subject to subjoined modification) score at least 50 per cent. in each portion of the Examination marked by an asterisk. He must also obtain an average of at least 50 per cent. in each of the groups indicated by a bracket. N.B.—In case, however, of a Candidate who obtains *very good* marks in one of the practical subjects while slightly failing in the other, the Examiners shall have power to pass such Candidate, provided his marks do not fall below 45 per cent. in his weak subject. The Council of the College resolved at the meeting of October 15, that the changes in the time-table and mode of marking suggested by the Examiners be adopted, and that steps be taken to alter the Regulations accordingly."

Then there is the Report by the Dental Education and Examination Committee.

"This Examination was instituted in 1878, after the passing of the *Dentists Act*, and up to the end of 1895, 504 Candidates had been passed out of a total of 529 examined; whereas the *Register* showed that there were 447 Licentiates of the Irish College of Surgeons at that time in practice, and that only four of those hold additional Medical or Surgical qualifications. The *Register* also shows that of the 504 Diplomas granted, only fourteen were passed *cum curriculo*; and at the present time any person already on the *Dentists' Register*, on production of certificates of respectability, of having been five years in practice, and of not having advertised during the past two years, may be admitted to Examination. Ten such persons applied at the Examination held in

June, 1876, when the Examination was visited. The Inspector reports that the First Professional Examination was sufficient and quite satisfactory in all respects; it is however only applicable to the "*cum curriculo*," Candidates. In the Second Examination the Practical part was taken first, as Candidates who fall short in this are not admitted to the Papers or to the Oral Examination. The Examination was pronounced sufficient. The Inspector would, however, have liked to have seen the Practical Mechanical Examination extended, and the Oral associated with it omitted as a distinct Examination, but made part of the Practical. As the *sine curriculo* Candidate is exempt from the First Professional Examination, and when passed is indistinguishable from the *cum curriculo* so far as privileges are concerned, the Inspector thinks it is a matter of serious consideration whether, if the "*sine curriculo*" Candidate is to be admitted for any longer period, he should be granted a Diploma upon terms so much easier than the "*cum curriculo*" Candidate—more especially as the Inspector expresses doubt as to the adequacy of the Examination to which the "*sine curriculo*" Candidate is subjected. The Inspector also in this, as his other Reports, finds fault with the system of percentage marking in its practical application in the making of Candidates pass each subject separately, the Examiner hesitating to give a weak Candidate the low marks he may deserve for fear of these marks then and there rejecting him in his subject. He believes it is better to let the Candidate pass by a total aggregate of marks, so that excellence in one direction—and particularly in the Practical—may cover slight deficiency elsewhere. He would, however, retain the power of an Examiner to reject a Candidate upon any one subject or part of a subject. His suggestion is therefore that the Candidate (unless rejected summarily upon any part) should pass or fail upon the total aggregate of his marks, retaining however the feature, which appears to be a good one, that a deficiency of marks in the Practical portions of the Examination cannot be made up elsewhere. The Council of the Royal College of Surgeons of Dublin, in their remarks upon the Report of the Inspector, dispute some of his criticisms, and assert that it has all along been the aim of the College to make the Mechanical test very thorough. They admit that the Examination work crowded into one day had better be divided, and have now made arrangements to that effect. The Council believe that they are exercising a wise policy in still admitting *sine curriculo* Candidates to Examination, "as by so doing they have gained a control over above a tenth part of the legitimate Dentists of the United Kingdom, and so advanced Dentistry towards becoming a reputable profession." They consider the arguments in favour of continuing this policy far outweigh those for abandoning it. They agree with the Inspector that additional weight should be given to the Practical portion of the Examination, and have agreed to modify the Final Dental Examination with that object. The Dental Education and Examination Committee cannot fail to see that the Royal College of Surgeons of Ireland, by still admitting *sine curriculo* Candidates to examination, and exempting them from the First Examination, have done their best to neutralize the effect of the *Dentists' Act* of 1878 and to drive Dental Students to obtain a Licence elsewhere. Indeed, since that date only 14 Candidates have passed *cum curriculo*, whilst 490 have passed *sine curriculo*, and so long as the College continues the system it is hardly likely *cum curriculo* Candidates will apply in any number."

The motion was then put and carried.

Mr. BRYANT: I now rise to move,—“That the Report by the Dental Education and Examination Committee on the Qualifying Examinations in Dentistry be received and entered as an Appendix to the Minutes.”

Mr. BRUDENELL CARTER recorded the motion:

Mr. BRYANT: This Report is the outcome of the whole visitation of the four Bodies,—the Royal College of Surgeons of Edinburgh, the Faculty of Physicians and Surgeons of Glasgow, and the two Reports I have read with regard to the Royal College of Surgeons of England, and the Royal College of Surgeons of Ireland. Before reading this Report, I should like to say that it was written for the Medical Council in December, 1896. It was brought before them, but not considered. It was returned to us to consider with the following instruction:—

“That the subject be remitted to the Dental Education and Examination Committee to consider whether it is desirable in any way to modify the existing Regulations of the Council as to the course of Study and Examinations to be gone through by the candidates for Licences in Dental Surgery, and to report thereon to the Council at the May Meeting.”

You will find my Report is divided into two parts. The first part is the Report I brought up in December last year. I did not think it wise to modify that Report, and I thought it better to give an additional Report carrying out the wishes of the Council. I will read the whole of the Reports.

1.—REPORT BY THE DENTAL EDUCATION AND EXAMINATION COMMITTEE, as Presented to the General Medical Council, December 1, 1896.

The *Dentists' Act* was passed in 1878.

On March 26, 1879, a *Report* by the Executive Committee on the Qualifications for Registration under this Act was received, entered on the *Minutes* and adopted by the General Medical Council; and on July 19, 1879, the final *Report* of the Dental Curriculum Committee of the General Medical Council was adopted.

On November 28, 1894, a *Report* of the Education Committee on the codification of the existing Regulations applicable to Dental Qualifications was received and entered on the *Minutes*.

On May 25, 1894, the Council, when considering a *Report* by the Education Committee on the Curriculum for the Licence in Dentistry, agreed to the following resolution, on the *Motion* of Drs. Tuke and Bruce:—

“That in order that the Council may be assured that the requirements especially dealt with in this *Report* and other requirements are being fully complied with, they shall, in accordance with Section 22 of the *Dentists Act*, 1878, appoint an Inspector or Inspectors, whose duty it shall be to visit and report on the Examinations conducted by the Bodies granting Qualifications in Dentistry, with special instructions to examine the schedules and certificates presented by every Candidate, and that it be remitted to the Executive Committee to consider the best way of carrying out the inspection.”

On November 26, 1894, the Executive Committee proceeded to consider the above resolution, and resolved:—

“That Mr. C. S. Tomes be deputed to be present at, and report to the Council on, the Examinations of the Bodies granting Dental Diplomas, and that, like the Visitors appointed by the Council to attend the Medical Examinations, he be paid his travelling expenses and hotel expenses;

“That the Registrar be instructed to obtain from the Bodies granting Dental Diplomas, the dates of their Examinations during 1895;

"That the Executive Committee arrange at its meeting in February the commencement of the visitation."

On February 25, 1825, the Executive Committee resolved:—

That the Inspector be requested to attend the Examinations conducted by the Bodies granting Qualifications in Dentistry at such times as may be most convenient to himself during the present year.

On June 6, 1895, the existing Dental Education and Examination Committee was formed, and the Report of the Committee, based upon the Reports of the Council's Inspector of Dental Examinations, is now presented to the General Medical Council.

The Report is headed by a table prepared for the Committee by the Registrar, to show the curriculum as recommended by the General Medical Council, and how far the regulations of the four Dental Licensing Bodies are in conformity with these Recommendations.

It is pleasing to have to report that all the Bodies now come up to the approved curriculum, although the scheme of the Royal College of Surgeons of England differs somewhat from that originally laid down—for example, a course of *Materia Medica* lectures is not now required in their curriculum, whilst attendance at a recognised General Hospital for two winter sessions instead of for one year is called for; as well as attendance upon a course of Dental Histology, with separate practical courses of Dental Surgery, Metallurgy, and Mechanical Dentistry. The Royal College of Surgeons of Ireland also requires two courses of Dental Surgery and of Mechanical Dentistry.

The deviations from the original Recommendations of the General Medical Council, it may be observed, in no way depart from the Council's wishes, since they all tend to make the practical part of the course of study more complete.

The Committee would here point out to the Council that whilst there is but one Dental Licensing Board in England and Ireland—(the two Royal Colleges of Surgeons)—there are two in Scotland, viz., the Royal College of Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow.

The Committee fails to see the advantages of Scotland having two Dental Boards, and would recommend that they should unite and form one Conjoint Board, so that there would then be but one Dental Licensing Body in each division of the United Kingdom.

The new regulations of the English College, that there shall be a Preliminary Science Examination, followed by two Professional Examinations, seem to this Committee to be framed entirely in the right direction.

Under this arrangement, Candidates for the Dental Diploma, before entering at a Dental School, may present themselves for the Preliminary Science Examination on the production of certificates of having received instruction at an institution recognised by the College for the purpose, in Chemistry—Physics and Practical Chemistry—these subjects being limited by Synopses: the Examination being equivalent to Part I. of the First Examination of the Conjoint Board in England.

The first Professional Examination—which includes Mechanical Dentistry and Dental Metallurgy—is open to the student after the completion of his three years' instruction in Mechanical Dentistry under a competent practitioner, and six months' attendance at a recognised Dental Hospital and School, on production of certificates of having attended a course of lectures on Dental Metallurgy, a course of practical

Dental Metallurgy, a course of lectures on Dental Mechanics, and a course of practical Dental Mechanics, including the manufacture and adjustment of six dentures and six crowns.

The Second, or Final, professional Examination, on Dental Anatomy, Physiology and Surgery (including Pathology), may be passed after the completion of the Student's four years of professional study from the date of registration as a Dental Student, on production of the required certificates as laid down in the Regulations, and after the lapse of not less than six months from the date of passing the first Professional Examination.

The Committee would likewise urge the adoption of Rule IV in the Recommendations of the General Medical Council, as formulated by the Examination Committee in their Report, presented June 9, 1896:—

“That a Candidate remitted in any subject should, before he is admitted to re-examination, be required to produce satisfactory evidence that he has pursued the study of that subject during the interval of remission.”

This Committee cannot but express some regret that the Royal College of Surgeons of Ireland has not yet fallen into line with the three other Dental Licensing Bodies, by giving up, as these latter have done, the examination of *sine curriculo* Candidates.

As long as such Candidates are admitted to examination, and can obtain a license upon easier terms, *cum curriculo* Candidates will not be encouraged to apply for the same qualifications; and, as a consequence, the good which might have been expected to accrue from the Dentists' Act in raising the standard of the Dentists' diploma will not completely be attained. The Committee are reluctant to recommend to the General Medical Council any material alterations in the curriculum which was laid down after the passing of the Dentist's Act in 1879. They are pleased to report that all the Examining Bodies in essential matters now follow out the curriculum and fairly well maintain the standard of the Examination; where the arrangements of the Examining Bodies deviate from the scheme they do so in order either to develop the practical branches of the dental arts, or towards the curtailments from the course of study or the Examination of such subjects as seem to be, or have been proved to be, non-essential. The Committee therefore recommend the Council to leave the responsibility of sanctioning these deviations in the hands of the different Examining and Teaching Bodies, under the conviction that by so doing they will, through the experience of these Bodies, be helping the solution of the problem as to the best scheme of education and examination of the Dental Student.

THOMAS BRYANT,
(Chairman)."

I will now read the Additional Report.

2.—ADDITIONAL REPORT.

PRESENTED MAY, 1897.

PART I.—WITH RESPECT TO CURRICULUM.

The changes in the curriculum of 1879 which are now recommended are based upon the collective experience of the four Dental Examining Boards in the United Kingdom, and are by no means revolutionary.

Thus in Anatomy, in regard to which this Council recommended in 1879 the attendance upon two winter courses of lectures, or as an

alternative to the second full course, a short one of not less than twenty lectures on the Anatomy of the Head and Neck, together with some nine months' dissections, it seems that not one of the Examining Bodies has in recent years called upon their Dental Students to give more attention to Anatomy than is now required of the general Medical Students who seek to pass one of the Conjoint Boards, and that the study of Anatomy now called for is attendance of a six months' course of Anatomy, with twelve months' dissections, including demonstrations.

The Committee therefore recommend the adoption of this change.

One six months' course of lectures in Physiology seems to be generally approved, but the Committee would like to see this course helped by a practical one, either introduced as part of the six months' course, or in preference as a separate course.

The English College of Surgeons adopts the latter arrangement.

The course of Dental Anatomy and Physiology of not less than twenty-four lectures has proved quite acceptable to the Examining Bodies, and the course has apparently included Human and Comparative Anatomy. The Committee would emphasize the necessity of this arrangement being always carried out, together with instruction in Dental Histology with the preparation of Microscopic Sections.

The Recommendations of the Council as to a six months' course of Lectures on Chemistry, with a practical course of not less than three months, and a separate course of not less than twelve lectures on Metallurgy, do not appear to have been closely followed; for one of the Examining Bodies has included the subject of Metallurgy in the course of Chemistry; whilst another not only requires a separate course of lectures on Metallurgy, but a separate practical course should be enforced.

The Recommendation that one six months' course of lectures on both Surgery and Medicine should be required, together with a special course of not less than twenty lectures on Dental Surgery, is generally accepted; and the Committee would only suggest that in all these courses Pathology should be included, as it is most important that in clinical work the Examining Bodies should show the necessity of such work being based on Pathological knowledge.

The single course of not less than twelve lectures on Mechanical Dentistry which this Council recommends seems to have been generally looked upon as somewhat limited, since at one College two courses are required and at another a separate course of practical work is called for.

The Committee believe that in this special Dental work these deviations from the Recommendation of this Council are good, and advise that a course of Practical Dental Mechanics should be added to the curriculum.

With these slight additions to the curriculum, all of which tend to improve the practical work of the Dental Profession, the Committee advise the subject of *Materia Medica* to be eliminated. To require a Dental Student to attend a three months' course of lectures on this large subject the Committee believe to be quite unnecessary, for it seems certain that the Therapeutical knowledge which is required by the Dental Practitioner will be gained during his attendance on the wards of the Hospital, the general lectures he is required to attend, and during his four years of practical work.

With respect to the other Recommendations of the General Medical Council the Committee have no suggestions to make in the way of alteration, such as

Attendance at a recognised General Hospital for one year with clinical instruction ;

Attendance on the practice of a Dental Hospital or Dental Department of a General Hospital for two years ;

The attainment of the age of twenty-one years ;

Having passed a Preliminary Examination in General Education ;

Having been engaged in Professional Studies during four years ;

Having received instruction in Mechanical Dentistry during three years ;

since all these Recommendations seem to be acceptable to all the Bodies.

PART II.—RECOMMENDATIONS WITH RESPECT TO EXAMINATIONS.

With respect to the division and order of examinations for the Dental Diploma, it does not appear that the General Medical Council has made any recommendations beyond the suggestions that the Examinations should as far as possible be of a practical character, and should include actual operations and the preparation of specimens of Mechanical Dentistry (Vol. XVI, p. 146, 1879). The Council in 1879 clearly thought it expedient to leave all such arrangements in the hands of the Examining Dental Bodies.

It is satisfactory to report that this confidence has not been misplaced, although your Committee, as an outcome of the Inspections which have just been completed, are of opinion that some improvement in the order and course of the Examinations may with advantage be introduced.

(1) They would suggest that the Preliminary subjects of Physics, Chemistry, and Practical Chemistry—which may be attended before Registration—should be passed before, or as soon as, the Student enters at a Dental School ; this Examination being made to stand in relation to the Dental Diploma in the same position as it is desirable that the Preliminary Scientific Examination—which includes the same subjects—should stand to a registrable Medical Qualification.

(2) That the first Professional Examination should be open to the Student after the completion of his three years' instruction in Mechanical Dentistry under a competent practitioner, and after registration and six or twelve months' attendance at a recognised Dental Hospital and School, on the production of certificates of having attended a course of lectures on Dental Metallurgy, either including practical work or with, if possible, a course of practical Metallurgy as well ; and a course of lectures on Dental Mechanics, either including practical work or with a course of practical Dental Mechanics as well.

This Examination should include Elementary Chemistry, Mechanical Dentistry, and Dental Metallurgy ; the two former being partly Practical and partly Oral, the latter by written paper only.

It might likewise include the subjects of Dental Anatomy and Physiology, as well as General Anatomy and Physiology, if found convenient to the examining bodies.

The Practical part of both the first and the second Examination should always be made a strong feature.

(3) That the Second Professional or Final Examination should be open to the Student after the completion of his four years' professional study from the date of registration as a Dental Student and after the lapse of not less than six months from the date of passing the First Professional Examination ; the student being required to produce

evidence of having previously attended at a recognised Dental Hospital and School:—

- (i) the practice of Dental Surgery for two years;
- (ii) a course of Dental Anatomy and Physiology, including Dental Histology;
- (iii) a course of Dental Surgery, either including practical work or with a course of practical Dental Surgery as well;
- (iv) a six months' course of Anatomy at a recognised Medical School and of having performed dissections for twelve months;
- (v) a six months' course of Physiology, including practical work, or a separate practical course of Physiology;
- (vi) a course of lectures on Surgery, including five lectures on the affections of the Mouth;
- (vii) a course of lectures on Medicine.

Certificates should also be produced of having attended at a recognised Hospital or Hospitals the Practice of Surgery and Clinical Lectures in Surgery for one year or two winter sessions; and of being 21 years of age.

The Examination should be partly written, partly practical, and partly oral.

It should include:—

Practical Anatomy and Physiology; Dental Anatomy and Physiology (unless these subjects have been included in the First Professional Examination);

Dental Surgery and Pathology; and

Practical Dental Surgery.

An Examination in General Medicine and Therapeutics is not required: the necessary teaching and learning of these subjects so far as they belong to the practice of Dentistry being included in the General Scheme as laid down.

THOMAS BRYANT, *Chairman*.

The motion for the reception of the report was then put from the Chair, and agreed to.

Mr. BRYANT. I will now move the adoption of the Report.

The CHAIRMAN: I think we should consider the position of the Council now in connection with the report you have just read. I myself would venture to say that I do not think you should put the motion for the adoption of the Report. I suggest that because you will observe that under the head of Part 2 of the recommendations with respect to the examinations the Committee have formulated a whole series of recommendations, and it is customary when reports of this kind come before the Council that those recommendations should be considered *separatim*.

Mr. BRYANT: I will follow your suggestion, Sir.

The CHAIRMAN: Is it the pleasure of the Council that the further consideration of this most important report should be on the lines I have indicated?

Dr. McALISTER: Are we going into Committee?

Mr. TEALE:—May I ask whether these are in proper form? Do these want converting into recommendations?

Mr. BRYANT: They are ready to come forward.

Dr. HERON WATSON: Before going into Committee would it not be desirable that the report should be sent down to each of the Bodies granting diplomas in order that they may express their opinions upon

t hem? If we had such a consensus of opinions we should be in a better position to carefully consider the matter. It would be far better to carry the Bodies with us if we possibly can. They have had no opportunity of seeing any other Reports than that on their own examination. If they had this general, admirable, Report which the chairman of the Committee has read I think it might do a great deal to smooth away the difficulty. There can be no hurry with regard to the matter, and I do not think the loss of six months will be any real loss, but rather a gain in the direction of being able to carry on what is suggested to practical application.

The CHAIRMAN: Will you make a motion to that effect?

Dr. HERON WATSON: I will move that.

Mr. BRUCE: I beg to second that.

The CHAIRMAN: The Council will observe that in accordance with this motion of Dr. Watson's, supposing it is agreed to, the Reports will go before the Bodies not as recommendations of the Council, but as recommendations of this Committee. Perhaps Dr. Watson will frame his motion in that way so that the Bodies may see they are the recommendations of the Committee and not of the whole Council.

Mr. TEALE: Will it not also be well to say "With the view of the consideration of the recommendations at the next meeting of the Council"?

The CHAIRMAN: Yes.

Dr. TUKE: I should like to call attention to the remarks made with regard to the *sine curriculo* examination. They are very strong remarks, but there is no recommendation. Might not the Committee consider whether they will not make a definite recommendation upon the question so as to test the opinion generally of the Council?

The CHAIRMAN: Though that would not be outside the Report, it is outside the series of recommendations. It is a wide question upon which a specific motion might be made. It does not effect the question which Dr. Heron Watson raises.

Mr. BRYANT: I might say without a breach of confidence, that in my first Report before the Committee, I introduced a sentence which was toned down in our meeting yesterday, so much so in fact, that one part of it was eliminated. As there seems to be a wish that the question should be brought before the Council to test the feeling connected with it, I should like to say that I have written here, "The Committee of the Board strongly urge upon the General Medical Council to so influence the Royal College of Surgeons of Ireland, as to induce them to give up as speedily as possible examining *sine curriculo* candidates." That was my own conclusion, but my friends, when they came to consider it, thought it was rather a harsh one, and it was eliminated. I should be very pleased indeed, as a member of the Council and Chairman of the Committee, to make the proposal as it stands, and test the feeling of the Council on it.

The CHAIRMAN: Dr. Watson has handed me in his motion. It is as follows:—"That the recommendations of the Committee on Dental Education and Examination, together with the whole of the Reports bearing upon the recent Inspection of the Examinations of the four Bodies granting Diplomas in Dentistry, be sent to those Bodies for their consideration, with a view to their expressing their opinion on the same, and that these opinions be reported to the Council at its November meeting, before the Council comes to a decision on the recommendations of the Committee."

Mr. BROWN : I should like to ask whether you could include in that a supplementary note to the College of Surgeons of Ireland, asking as to their willingness to forego the examination *sine curriculo*.

The CHAIRMAN : That will form a special motion by Mr. Bryant, which if you agree to this will follow.

Dr. HERON WATSON'S motion was then put from the chair and carried.

Mr. BRYANT : I propose to defer the Resolution which I was going to bring before the Council respecting the *sine curriculo* candidates until we get the report from the Dublin College. I should like to hand this in as a notice of motion.

The CHAIRMAN : We cannot send a notice of motion to the Body.

Mr. BRYANT : I think we had better postpone it.

Dr. McVAIL : I should like to call Mr. Bryant's attention to one point regarding the Royal College of Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow, with reference to which the Committee laments that these two Bodies do not form in one joint board. Would Mr. Bryant show these Bodies how they could form a joint board? I only want to call Mr. Bryant's attention to the fact that there is no power under the Dental Act to do that. There is power under the Medical Act to combine for the medical qualification, but there is no power under the Dental Act so far as I can see, or as far as we can see in Glasgow; so I think it is hardly fair to put that in the Report, and I think that part should go out.

The CHAIRMAN : It has already been entered as an appendix to the Minutes. You should have raised that question earlier.

Dr. McVAIL : Has the Report been adopted?

The CHAIRMAN : It merely goes in as an appendix. There is no motion to adopt it; and I venture to suggest to Dr. McVail that what he has stated would be a very efficient answer on the point of the Faculty of Physicians and Surgeons—namely, that there is no power to enter into combination. It might form part of the opinion which they will express to the Council to be considered at the November meeting.

Dr. McVAIL ; I want to point out that the two Bodies in Scotland are entirely blameless in the matter, because they have no power.

Dr. RENTOUL : I take objection to what Dr. Vail says. If you refer to Section 2 of the Dentists' Act of 1878 you will find that there is power given there for the formation of examining Bodies. "In the event of the Board being at any time after the passing of this Act established"—

Dr. McVAIL : But that Board is a Board from each Body entirely restricted to one Body. That is not a combined Board. There is no power given there.

Dr. RENTOUL : Oh! yes there is.

Dr. McVAIL ; There is no power given for the combination of two Boards.

Mr. BRUDENELL CARTER ; The words are "Nominated on behalf of any two or more Medical Bodies."

The CHAIRMAN ; There is no motion before the Council. Attention has been called to the matter, and I have no doubt the Bodies will satisfy the Council on the matter in their answer.

Dr. RENTOUL; Is it going forth that the Colleges have not at present statutory power to combine?

Dr. McALISTER; Will it appear from anything remitted to the four Bodies that the Dental Examination Committee of this Council have any objection to *sine curriculo* examinations? I take it that the only phrase objecting to it was struck out.

GENERAL MEDICAL COUNCIL.

Saturday, May 29th.

At the opening of Saturday's sitting of the Council, Mr. THOMSON called attention to the Report of Mr. Tomes on the Examination for the Diploma in Dentistry of the Royal College of Surgeons of England. The Council, he said, was aware that the whole mass of Reports had gone down to the various Colleges for consideration and report to the Council next winter; but in the Report which Mr. Tomes had sent in regarding the Examination in London, one or two statements were made which it would be well the Council should have its attention drawn to, because it was quite possible that those statements might have some considerable effect in regard to other Licensing Bodies. On page 20 of his Report, Mr. Tomes stated: "The general conduct of the Examination, the scope and suitability of the questions asked, and the method of marking adopted, leave little to be desired." And further on, in the Report of the Dental Education Committee, signed by Mr. Bryant as chairman, were the words: "The Committee regard this Report as a valuable one, and ask the Council to bestow upon it their close attention. The alterations which it contains in both the curriculum and course of Examination appear to be in the right direction, and your Committee believe that many are worthy of adoption." Therefore, the Report had been sent down to the other Licensing Bodies, with the declaration of the Inspector as to the excellence of the examination, and it was corroborated by the Report of the Dental Committee, who considered that the changes had been in the right direction, and that the Examination was one worthy of adoption; and it was not unlikely that other Bodies might consider the question whether they ought not to frame their examinations upon that model. He asked the attention of the Council to one or two points in the Report of the Examination in Surgery. It should be borne in mind that the Examination was of gentlemen who were to receive a Licence to practice dentistry pure and simple. It was stated: "In surgery the following present a fair sample of the questions asked," and the members would find such subjects mentioned as the treatment of parotid fistula, tongue tie and its treatment, removal of the tongue, sebaceous cyst of the scalp, dermoid cyst, wound of the radial artery, gummata, the stages of syphilis and the treatment of it.

Dr. RENTOUL asked if it was a surgical qualification.

Mr. THOMSON said it was a qualification for drawing teeth—dentistry pure and simple. He wanted simply to call the attention of the Council to the matter, and to know from Mr. Bryant, who was Chairman of the Dental Committee, and the representative of the English College of Surgeons, whether he thought that such an examination was one which was quite adapted to the purposes of the qualification. It seemed to him that if they were to proceed upon those lines, they were putting

the dentists into a much better position than the licentiates or members of any College of Surgeons in the kingdom, because they were not only testing a dental student's capacity to deal with the whole subject of dentistry, but they were enlarging his powers and knowledge in general surgery. He did not quite see what connection there was between the scalp and the teeth, or syphilis in general and the teeth. He could quite understand that certain syphilitic sores about the mouth might be recognised, but when they go into the general question of gummata, the question of syphilis and its treatment, he thought the Council ought to say something, at all events with regard to limiting the scope of an examination in surgery. They were about, apparently, to create a new order of practitioners, gentlemen who were to be dentists, and to know a great deal of what the general surgeon knew, in fact, to make a class of dentists, who in some respects were to be superior to the ordinary members or licentiates of the various surgical corporations.

Mr. BRYANT said the statement that "the Committee regard this report as a valuable one, and ask the Council to bestow upon it their close attention," &c., was in the first Report before the question was returned to the Committee for reconsideration, and the Committee felt that the line which his own College had adopted in the way of examination were good, and although they were not prepared then to recommend to the Council a scheme, they thought it was worth calling the special attention of the Examining Boards to what the College of Surgeons was doing, so that they might frame their own schemes somewhat on the same line. In the second Report, however, the members would find that it did include many of the arrangements that had been adopted by his College, and so the remarks which had been made in the first Report were really realised in the second Report. He thought Mr. Thomson was quite right in calling attention to the subject. Of course, to talk of the removal of the tongue, and cysts on the scalp, seemed to be a little outside their province; but at the same time, if a series of questions were taken that had been given at any examination there was never the slightest difficulty in raising objections to one or two ("Oh, oh,") in a large series of viva voce Examinations. In the present case, he thought that taken as a whole the questions were most satisfactory. He was greatly pleased to have his attention drawn to the matter, and he would call the attention of his own College to it.

THE TWELFTH INTERNATIONAL MEDICAL CONGRESS.

The preparations for the Twelfth International Congress, which will meet in Moscow in August, are proceeding apace. The Czar, who has recently taken it under his own patronage, has expressed his readiness to receive, through their respective ambassadors, certain representatives of each of the nations which may send members to the Congress.

The sum granted by the Russian Government towards the expenses of the Congress was originally 50,000 roubles, but

this has recently been increased by a second grant of 25,000, making a total of 75,000 roubles, or about £8,000. This sum has been increased by private subscriptions, and by grants from corporate bodies, such as the Municipalities of Moscow and St. Petersburg, the *zemstvo* of the "Government" of Moscow, and others. The State has, indeed, dealt most liberally with the Congress, not only granting the sums already named, but by also promising to all members of the Congress free return tickets to Moscow, from the frontier for foreigners, and from any part of the country for Russian members. This will reduce the cost of the trip to Moscow by some £4 or £5, whatever be the route chosen.

The arrangements for accommodating the influx of visitors to Moscow are under consideration, but are not yet completed. Some fifty medical men in Moscow have offered to take in members of the Congress as guests; and the Executive Committee believe they can reckon on 700 beds at hotels and 1,600 in furnished apartments as available at the time of the Congress. Some arrangement will probably be come to with the leading hotels by which, if a certain number of visitors be guaranteed, a reduction will be made in the hotel terms. Special cards are to be printed, which will be handed to the member on his arrival at the station, giving addresses of hotels and lodgings and their terms.

The city of Moscow is certainly one of the most interesting, and perhaps the most picturesque of European, or, indeed, of the world's, capitals. To members of a medical congress it presents other attractions. Moscow now possesses one of the largest and most perfect clinics in the world. In addition to this it has a large number of municipal and private hospitals and asylums and other medical institutions which are fully equal to those of any western capital. Visitors to the Congress will have an opportunity of seeing all these, and also of becoming acquainted with them in detail, through the means of a *Guide* to the medical institutions of Moscow, which is in course of preparation by the Executive Committee. Each member will receive a copy of this, as well as a general guide to the city, a description of the University clinic with plans, and a pamphlet giving a full account of the system of medical aid provided for the peasants by the *zemstvos*, or local governing bodies, in Russia. These will be printed in French. A fourth pamphlet, describing the medical societies of Russia, will be printed in French and Russian.

The lighter side of the Congress—the provision of entertainments for the members—has not been forgotten. It appears probable that every evening of the eight days the Congress lasts will be taken up by some reception or dinner or other form of entertainment. Excursions to places of interest are also being arranged for. The two most extensive and important of these excursions will be to the Caucasus and to the cities of the Volga. The details of the latter have not been published, but those of the former have been, and a most attractive bill of fare they present. This Caucasian tour will start on August 27th (new style), the day after the close of the Congress. It will occupy exactly a fortnight, and those who are fortunate enough to be able to avail themselves of this unique opportunity will be able to see some of the most interesting parts of the Caucasus, including the famous mineral spas, the Georgian Military Road (or, as an alternative, a bit of the Caspian Sea), Baku, Tiflis, Batoum, and many other interesting places. The total cost of the fortnight's tour, exclusive of meals, is 150 francs, or £6. There will be no hotel expenses, as arrangements are made for the travellers to sleep each night either in a train or on board a steamer.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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ORAL SURGERY.

By EDMUND W. ROUGHTON, B.S., M.D. (Lond.), F.R.C.S.
Eng.

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(*Continued from page 106.*)

OPERATIONS ON THE UPPER AIR AND FOOD PASSAGES.

Before describing these operations it will be well to recall to mind the anatomy of the middle line of the neck.

Running from the chin to the hyoid bone, there is a raphé between the genio-hyoid muscles ; next in order (proceeding from above downwards) is the thyro-hyoid membrane, which is incised in *sub-hyoid pharyngotomy* ; then comes the notch in the thyroid cartilage (*Pomum Adami*) which can easily be felt in adult males, but is almost indistinguishable in fat children ; in *thyro-chondrotomy* the incision passes through the middle line of this cartilage ; immediately below it is the crico-thyroid membrane through which the opening is made in *laryngotomy*. The cricoid cartilage comes next, opposite the fifth cervical vertebra ; it is a valuable land-mark as it can always be felt. Next comes the trachea, two or three rings of which are above the isthmus of the thyroid body, whilst six to eight rings in all are above the manubrium sterni. The isthmus of the thyroid body is in adults about

half an inch broad and overlaps the third and fourth rings of the trachea leaving a space of about a quarter of an inch between it and the cricoid ; in this region the trachea is opened in *tracheotomy*. When the opening is extended upwards through the cricoid as well as the upper rings of the trachea, the operation is called *laryngo-tracheotomy*. The trachea as it descends from the thyroid isthmus, recedes from the surface. Above the thyroid isthmus the air passage is quite superficial being covered only by skin and fascia and overlapped by the sterno-hyoid muscles, but below the isthmus the trachea is much deeper and more difficult to reach, becoming covered by the sterno-thyroid muscles, inferior thyroid plexus of veins, branches of the inferior thyroid arteries, the thyroidea ima (when present) and sometimes the left innominate vein just above the sternum.

LARYNGOTOMY.

This operation affords the easiest and most rapid way of opening the air passage. It is therefore *par excellence*, the operation to be performed on an emergency, as for instance when suffocation is imminent from the impaction of a foreign body at the entrance of the larynx. Under such circumstances a knife should be plunged in immediately above the cricoid cartilage, dividing the skin and subjacent crico-thyroid membrane transversely.

When the operation can be performed deliberately, a vertical incision an inch long should be made in the middle line, opposite the space between the thyroid and cricoid cartilages. The crico-thyroid membrane having been exposed is opened transversely by inserting the knife just above the upper margin of the cricoid, so as to avoid the crico-thyroid artery and to make the opening as far as possible from the vocal cords. A laryngotomy tube (compressed from above downwards so as to fit the crico-thyroid space) is then inserted and tied in with tapes.

It is but seldom that this operation is required, as when a deliberate operation can be performed it is preferable (for the reason stated below) to perform tracheotomy.

TRACHEOTOMY.

Tracheotomy may be required under the following circumstances.

A. To relieve dyspnoea due to :

1. Diseases causing obstruction to the passage of air through larynx or upper part of trachea, such as laryngitis, ulceration of larynx, tumours of larynx, etc.

2. Foreign bodies, scalds of larynx, etc.

B. For the removal of foreign bodies and tumours.

C. As a preliminary to operations on the mouth attended with risk of entrance of blood into larynx, e.g. removal of tongue, upper jaw, etc. Tracheotomy is preferable to laryngotomy (except in cases of emergency) because :

1. It does not interfere with the integrity of the larynx. After laryngotomy the voice is sometimes impaired or lost, owing to inflammation extending to the crico-thyroid or crico-arytenoid joint, or to contraction of the crico-thyroid membrane.

2. The tube is more easily managed in tracheotomy than in laryngotomy.

3. Subsequent manipulations e.g. for the removal of foreign bodies in the larynx or trachea can be more easily conducted.

4. Laryngotomy is inapplicable in children owing to the small size of the larynx.

The operation may be performed either above or below the isthmus of the thyroid ; for the anatomical reasons already stated the high operation should always be performed when possible. Chloroform should be given especially in children as their struggles are apt to interfere with the operator. In adults

an anæsthetic is not necessary as, after the first incision, no pain is felt. A small pillow should be placed behind the neck to render the larynx prominent. An incision an inch and a half to two inches long is made exactly in the middle line from the cricoid cartilage downwards; the interval between the sternohyoid muscles is found, and the dissection carried on between them avoiding, or if necessary, tying any distended veins which make their appearance. The first two or three rings of the trachea and the isthmus of the thyroid will now be exposed. The latter may be drawn downwards if there is not enough room; this may be facilitated by dividing the fascia which connects the isthmus to the cricoid; if necessary the isthmus may be notched or divided in the middle line. The trachea having been clearly exposed and all arterial hæmorrhage arrested, a sharp hook is thrust into it just below the cricoid; the first two or three rings are then divided with a knife, the



Fig. 65.

TRACHEOTOMY.

back of the blade being directed downwards. (Fig. 65.) The wound in the trachea is held open with the tracheal dilator



Fig. 66.
TRACHEAL DILATORS.

(Fig. 66.) and the outer part of the tracheotomy tube (Fig. 67)

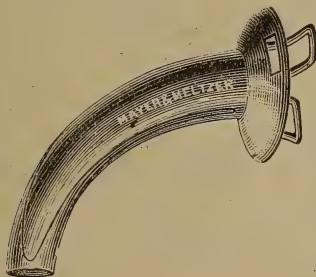


Fig. 67.
TRACHEOTOMY TUBE.

is inserted ; the inner portion is passed in immediately afterwards, and the whole apparatus fixed with tapes tied round the neck.

Difficulties and dangers of Tracheotomy. When the operator has plenty of time, good light, skilled assistance and an adult patient with a thin neck, no difficulty will be experienced, but under the opposite conditions, great trouble may result in one or more of the following ways :

(1) The hyoid bone or thyroid cartilage may be mistaken for the cricoid in a fat-necked child.

(2) The incision may be too short, embarrassing the later stages of the operation.

(3) Hæmorrhage is always a source of trouble. Arteries should be tied, veins unless large may be left, as they will cease to bleed when the trachea is opened.

(4) The interval between the sterno-hyoid muscles may

be missed, and the dissection carried to one side of the trachea.

(5) The knife may go right through the trachea and enter the œsophagus. The vertebral column has been seen at a post mortem examination scored with the knife.

(6) Blood may enter the trachea. This is best avoided by tying all vessels and by thoroughly exposing the trachea before it is opened. Should blood enter the trachea, the patient should be turned over and the head lowered so that it may run out.

(7) The tube may be passed between the trachea and the fascia covering it. This may be avoided by fully exposing and freely incising the trachea before attempting to insert the tube.

After-treatment. The air in the room must be kept warm and moist. The tracheotomy tube should be frequently cleansed. After a few days a rubber tube must be substituted for the metallic one, as the latter is apt to damage the trachea. The tube should be dispensed with as soon as the normal passage for air has been restored. It is usually advisable to remove the tube for a few hours during the day, before dispensing with it entirely. When a tube has been worn for a long time, difficulty may be experienced in doing without it, owing to adhesion of the vocal cords, granulations in the trachea, or paralysis of laryngeal muscles.

LARYNGO-TRACHEOTOMY.

This operation differs from tracheotomy in that the incision is prolonged upwards through the cricoid cartilage. It is sometimes necessary in children when the space above the thyroid isthmus is not large enough.

THYRO-CHONDROTOMY.

This operation, (often called *Thyrotomy*,) may be required

for the removal of a laryngeal tumour or foreign body. An incision is made in the middle line from the hyoid bone to the cricoid cartilage. The thyroid cartilage is then divided accurately in the middle line, great care being taken to avoid injuring the vocal cords. After removal of the growth or foreign body, the lateral halves of the cartilage are accurately sutured together.

SUB-HYOID PHARYNGOTOMY.

In this operation the pharynx is opened by incising the thyro-hyoid membrane. It is very seldom performed.

(To be continued).

FAINTING AND TOOTH EXTRACTION.

By WILLIAM RUSHTON, L.D.S. Eng.

The following remarks are suggested by a question recently asked of me : "Is a dentist justified in taking advantage of the unconsciousness produced by a fainting fit to extract the tooth of a patient?"

At first sight it may not seem an easy question to which to reply. The patient is in a condition of anæsthesia : why not take advantage of it and so save pain? The means taken to revive a patient are by stimulating peripheral nerves : why not employ the extraction of the tooth as a peripheral nerve stimulant, and so "Contrive a double debt to pay"? These are plausible arguments, and are brought forward by those who advocate this method of practice.

I consider, however, that the answer to the question ought to be a decided negative. Let us consider for a moment what a faint is. Fainting or syncope is a state of suspended

animation, due to sudden failure of the action of the heart.

The cause of the unconsciousness then, is a very grave one and differs markedly from the unconsciousness produced by anæsthetics. Syncope may be due to any condition which interferes with the action of the heart, whether acting (*a*) intrinsically, such as fatty degeneration, tight lacing, or chloroform poisoning; (*b*) nervous conditions, such as fear or grief; (*c*) conditions of the blood, such as hæmorrhage or chronic anæmia; (*d*) or from a combination of causes.

Now in answer to the first argument, "Why not take advantage of the unconsciousness?" the reply is that although the brain is asleep, the nerves are very much alive, the reflexes are not abolished, and therefore the shock to the patient when the tooth is extracted may be very acute. It may, in fact, be fatal, and in that case the questions asked at a coroner's inquest may be very unpleasant. Our first duty to our patient is to restore consciousness. With regard to the second question as to whether the extraction would not act as a nerve stimulant, the reply is that it would. But there is such a thing as over-stimulus, which means shock, and the extraction of a tooth comes under this head.

Is there any objection to administering nitrous oxide gas to a patient who has just recovered from a faint, or should the operation be postponed? According to our experts in nitrous oxide anæsthesia, there is no reason why the gas should not be given as soon as the patient is resuscitated. It would perhaps be better not to undertake the extraction of a number of teeth, and it would be advisable not to induce a very deep anæsthesia, but for an ordinary extraction no postponement is necessary.

What are the best means for resuscitating a fainting patient? The treatment consists in removing the cause of faintness, and in restoring the action of the heart. The patient should be placed flat on the back, doors and windows

should be thrown open, and the dress loosened. If the patient can swallow, a diffusible stimulant such as sal volatile or eau de Cologne, should be given, a teaspoonful in half a tumblerful of water. Smelling salts should be applied to the nostrils, and artificial respiration should be resorted to, with nitrite of amyl held to the nose in extreme cases.

Cases in which patients faint at the moment of, or during extraction, must be judged on their individual merits and left to the discretion of the operator.

DEEP APPROXIMAL CAVITIES AT THE GUM MARGIN.

By H. P. HEADDY, L.D.S. Eng., Madrid.

It being understood that all first class operators work always with the rubber dam (where possible) the difficulty often occurs how to place it with approximate cavities extending deep under the gum. I have tried various systems, including the copper wire which has helped me out of many difficulties, but none have succeeded so well as the one I have now adopted, and which is as follows: Take, for instance, a six-year-old lower molar with dead pulp and a mouth full of saliva, deep approximal cavity. At the first sitting without applying rubber dam I open well through the crown, into the pulp cavity, clean out the decay in the deep cavity below the gum margin, wash out pulp cavity with pyrozone (H_2O_2) 3 per cent. solution, and fill the pulp cavity lightly with gutta-percha, allowing the gutta-percha to protrude into the crown of the tooth in a conical form. Then fill the deep proximal cavity, and around the gutta-percha with amalgam a little

higher than the gum margin, making undercuts if necessary, for retaining the amalgam. Then fill rest of crown and approximate cavity with gutta-percha, remove any surplus of amalgam at the approximate border and discharge your patient till following day.

The following session remove gutta-percha from crown and see that the approximal border of amalgam is cleared of surplus, if not, remove with sand-paper disks or strips, then apply rubber dam which will grasp the amalgam, and you will be able to dry your tooth perfectly, remove the gutta-percha from pulp cavity, and you will have your roots well exposed and dry for future dressings, &c.

Preparing the Gum for a Crown.

Referring to an article published in *British Journal of Dental Science*, April 1, by Raymond Wenker, I think the small elastic band more adapted than the cotton ligatures for forcing away the gum before fitting the band in crowning operations, because it will not slip off, always working up, and the pressure is equally kept well up, causing the gum to recede, and leaving exposed the neck of the tooth, which is desirable before commencing crowning operations.

SOMEONE aptly said that men who are gentlemen do not need a code of ethics. It is quite true. It is also true that saints do not need the Ten Commandments; the dead do not need air; men who are well do not need the doctor. When we have in our profession no one who is not actuated by the conduct one gentleman shows to another, we shall not need a code of ethics. If our associations are to be kept free from the approach of the professional jockeys and sharpers, a code of ethics is the only safeguard.

Dominion Dental Journal.

British Journal of Dental Science.

LONDON, JULY 15, 1897.

THE RECENT DECISION OF THE SCOTTISH APPEAL COURT.

We hoped to have published in our last issue a report of the appeal in the case of *Emslie versus Paterson*. It, however, appears in our present number, and from it will be seen that the decision of the Sheriff's Court (which coincides with the decisions delivered on this side of the Border) has been upset, and the appellant has gained his case.

The case was taken under the third section of the Dentists' Act in which it is penal for an unregistered man "to take or use the name or title of dentist (either alone or in combination with any other word or words), or of dental practitioner or any name, title, addition or description implying that he is registered under the Act, or that he is a person specially qualified to practise dentistry." It is also expressly stated that the words title, addition or description include any title, addition to a name, designation or description, whether expressed in words or by letters or partly in one way and partly in the other. Now the appellant's case is that he did not call himself a dentist, nor did he take or use any name or description *to himself personally* implying he was specially qualified to practise dentistry. But he displayed a sign-board and brass plate on which were the words "American Dentistry, A. Emslie." He also had a brass plate affixed to the door of the house with the words "Dental Office" thereon, and he exhibited a diploma purporting to be granted by "The Dental University of New York" which conferred on him the degree of Master in Dental Surgery. The

Counsel for the respondent maintained that the title "American Dentistry, A. Emslie" implied that A. Emslie was specially qualified to practise American Dentistry, and if it does not mean that, what on earth does it mean? The counsel for the appellant contended that the title referred to only meant the place where American Dentistry was carried on, and that the man did not take the title himself, but applied the title to his place of business. Lord Trayner in delivering judgment said that "neither 'American Dentistry' nor 'dental office' could be said to be a name which the appellant had assumed, and neither was a title, addition or description added to his name implying special qualifications for dentistry."

With all due respect to the learned Lords of Appeal in Scotland, we venture to think that their decision is wrong, both in law and in common sense. If the words "pharmacist" veterinary surgeon" and "dentist" mean men who are specially qualified to practise these professions, then it follows as a matter of course that the words, "pharmacy" "veterinary forge" or "surgery" and "dentistry" inscribed on a place imply that the place bearing such a designation is used for the profession described. If a man who is not on the Chemists' register places the word "pharmacy" on his house he comes under the Pharmacy Act, and if a man not upon the register of Veterinary Surgeons calls his place a "Veterinary Forge" he is liable under the Veterinary Surgeons' Act. Similarly if a man not upon the Dentists' Register, places the words "Dentistry" on his place of business, he is equally liable under the Dentists' Act, and this has been upheld again and again in cases which have been decided in the English Courts. So much for the law. As regards the commonsense aspect of the case it is waste of time to argue; the thing is palpably absurd on the face of it. The injustice of the decision is patent to all. The legitimate practitioner has to undergo a certain training prescribed by law and receives in return certain privileges, not for his own benefit primarily, but for the guidance and safety of the public. But if this decision holds good,

anyone may impose upon the ignorance and credulity of the public without going through the trouble and expense of a dental education. The only drawback to his position would be that he could not recover fees in a court of law, and this could be easily guarded against. This decision unless upset exposes the public to considerable risks. The registered man who wishes to conduct his practice in a reputable fashion is prevented from advertising. No such idea of etiquette prevails with the quack, who lives on advertisement. The decision cannot be allowed to remain where it is; it must be appealed against to a higher tribunal, and if—as is most unlikely—it is upheld, then a speedy amendment of the Medical and Dental Acts must be brought about. To have the Act set at nought in this manner is not to be tolerated, and we trust that the matter will be set at rest before long, and that the protection of ourselves and also of the public, which is the object of the Act, will be made effectual.

VACCINATION AGAINST THRUSH.—Mr. Roger, in the *Société de Biologie*, says that an injection of a cubic centimetre of a culture of *oidium albicans* into the veins of a rabbit engenders a disease which kills the animal in five or six hours. If the injection is given in very small doses, the animal becomes immune and can endure a dose double the quantity of the usually fatal dose. The serum of the animal presents analagous characters to that of animals vaccinated against bacterial maladies. If thrush is injected into normal serum, at the end of twenty-four hours the fluid becomes flocculent and thick, while the serum of the vaccinated animal remains clear.

THE MOUTH-MIRROR.—The mirror has many uses in addition to that of a reflector of the image of the tooth to the eye. It can be used to reflect the light on to the tooth,

and when working on an awkward cavity, if the mirror can be held at such an angle that light is reflected on the cavity and the image to the eye at the same time, the best result is obtained. The mirror can also be used as a tongue-depressor, a cheek distender, a mouth dilator, and we had almost said, a plugger. At any rate it may be found a useful help in keeping a dressing, or absorbent wool or gutta-percha in its place for a moment until the plugger or spatula is brought into use. It is a good plan to work on the upper teeth from the reflection in the mirror rather than from looking at the actual teeth. By doing this the operator can work from behind his patients, he does not require to lean over or breathe upon them, and he saves his back much weariness.

ELECTRICITY AND DENTISTRY.—*Science Siftings* enlarges upon the use that electricity has become to the dental surgeon. We think that the writer is perhaps thinking more of the future than the present, as we know of no practitioner who is quite so up-to-date in electricity. The patient on arriving treads on a mat which sets an electric bell ringing announcing the arrival of the victim, who sits down to read by the aid of the electric light. He hears a distant whirring sound, it is the electric ventilating fan. The electric motor also runs the lathe and the dental engine. Arranged by the chair are electric lights for illuminating the mouth from without and within. The tooth is prepared and filled by the electric engine and mallet, and the patient rinses his mouth with water warmed by an electrical heating apparatus. If he has a dead tooth, the roots are dried by red hot points from the electric current which also heats the cautery if a growth is to be removed or a styptic required. A stand for warming gutta-percha or annealing gold may also be employed, and can be kept at any desired temperature. Instruments may be sterilised by being immersed in a sand or water bath electrically heated, while by cataphoresis drugs can be carried into the gum and dental tissues. No doubt in time when the use of the current becomes more general,

many more uses will be found for electricity, which at present seems only to be in its infancy.]

ANOTHER DEATH UNDER CHLOROFORM.—An inquest has been held on a man named Sempus, aged 40, who died at Perry Bar, near Birmingham, under the influence of chloroform. On Jubilee Day, Dr. Lewis, who attended deceased, advised the removal of two teeth, and Mr. Howard, surgeon dentist, accompanied by Dr. Lewis, attended at deceased's residence for the purpose of extracting them. An anæsthetic being considered advisable ether was administered by Dr. Lewis, but this having little effect, chloroform was resorted to. Under the latter deceased's breathing, which was quite natural for about a minute, became difficult, and suddenly ceased altogether. Every effort possible was made to restore vitality, but without success. Dr. Lewis stated that he had frequently administered chloroform, and in the present instance carefully examined deceased to ascertain, as far as possible, the condition of his heart. The post mortem revealed a fatty and dilated condition of the heart. The cause of death was failure of the heart's action, due to chronic disease, aided largely by an inflammatory swelling in the neck, preventing the blood passing properly into the heart. A verdict in accordance with the medical evidence was returned, the jury being of opinion that the chloroform was properly and skilfully administered. The chloroform may have been skilfully administered, but it was given to a subject who on no account should have taken it. If gas had been given, the man would have been alive now in all probability. But gas is a trouble and requires several visits, if much is to be done. Chloroform on the other hand is handy, easily administered, requires no apparatus, and one sitting is sufficient, and so lives are sacrificed.

Abstracts of British & Foreign Journals.

PULPITIS.

In a discussion following a paper on pulpitis read by Dr. L. L. Davis at the Chicago Dental Society, the following remarks were made.

Dr. P. J. Kester.—This matter of pulpitis is one that gave me a great deal of nervous disturbance in my earlier practice. There was no condition which presented itself to me at that time that made me think more, until I began to control it. When the dentist has a severe case of pulpitis with extreme pain he feels as helpless as at any time in his practice. I have learned somewhat how to treat pulpitis. I have found by experience and by information gathered from different sources, that the only way to treat pulpitis and to relieve the pain is to expose the pulp and let out some blood. Dr. Davis said that his treatment for pulpitis is arsenic. I should disagree with him. I think there are cases where it is necessary to preserve the pulp for some time. This is true with the anterior teeth of children, where the pulps are nearly exposed, and it is necessary to preserve them for some time. The tooth should be restored to its normal condition as nearly as possible in order that its full development may be attained.

The discovery of cataphoresis has made it possible for the dentist to allay the pain of pulpitis as nothing else has. I cannot agree with the essayist however, that we can destroy a pulp successfully by cataphoresis. I do not believe that as a pulp destroyer, cataphoresis is a success. I have no new remedies or other procedures to offer.

A Member.—I do not know what use was made of the small piece of ice which was referred to by the essayist, whether to stop pain, or whether it was necessary to apply arsenic for this purpose. It reminded me of a case that came to me last winter. A man came to my office with a snowball in his hand and kept biting it little by little, perhaps to allay the toothache, and I had difficulty in getting him to discontinue the use of the snowball in order to adjust the rubber dam and apply arsenic to stop this toothache. I would like

to have Dr. Davis explain what use he makes of the small piece of ice in the case mentioned.

Dr. Chas. J. Merriman.—I may have misunderstood Dr. Davis as making the statement that in tapping a tooth there was never any soreness or tenderness where there was pulpitis. It has been my impression in a number of cases, before operating, that the tooth involved had a dead pulp, thinking that the accompanying tenderness indicated it, and I would find upon operating that it was a case of deep seated pulpitis. Such cases I believe have been spoken of by Dr. Black, who is an authority on this subject. Dr. Black says, if I am not mistaken, that "in cases of deep-seated pulpitis, there is always marked tenderness, which is often confused with apical pericementitis following the death of the pulp.

Dr. J. N. Crouse.—I do not think the essayist has touched upon the vital points of pulpitis. The important point is to diagnose the case. Pulpitis is the first stage of a dying pulp, and it is frequently difficult to locate. I allude to a case in which a number of teeth are filled, in any one of which you might suspect the pulp to die. The patient will have severe paroxysms of pain, hard to locate and increasing in intensity.

What are the symptoms of pulpitis, and how are you going to tell them? I have been able to locate pulpitis in one of two or three ways. My first method is to tap on the teeth and see which one showed tenderness, for, if you have pulpitis you usually have more or less tenderness on tapping. Then you can make an investigation and see if your diagnosis is correct. If so, you can isolate that tooth by putting the dam over it and apply cold water to test it for sensitiveness. If that increases the pain apply a heated instrument to the tooth. If pulpitis be present the patient will have an extreme paroxysm of pain. As soon as I found that I was on the right tooth I should drill in there and expose the pulp as quickly as possible, because it is only a question of a few days when the pulp will die. Of course, it may die and the pain pass away if you do not drill into the tooth, and the patient may not suffer enough to demand an operation. I think there are cases where the pain passes off when the pulp is dead. But acute pulpitis is the first stage of death and I would relieve the pain as quickly as possible. If there is any place I could reach with a cataphoretic apparatus, I would reach it.

Just before I started to attend this meeting a patient came to my office. He was suffering very much with toothache

and had been in pain for two or three days. Some time ago I treated him for a severe case of abscess of the antrum, and ever since he has located pain in the antrum. He knows where it is and is positive about it. I told him I did not care where he located the pain, but to tell me what the symptoms were, and he replied that he had sharp paroxysms of pain. I began to tap on a lateral incisor, and found that this was the tooth which had given trouble for three days. I drilled into it, passed a broach two-thirds of the way up quickly, secured free bleeding, and the patient was relieved. He had been suffering severely and I did not want him to suffer any more. After drilling in I applied some carbolic acid, partially killed the pulp, cured the pulpitis, and I expect to treat the cavity to-morrow morning.

Dr. David M. Cattell.—About seventeen years ago, when I was just commencing the practice of dentistry, a young lady came into my office. She was a country lass. She had been playing ball and was struck in the face by the ball and a bicuspid tooth was injured. Pulpitis immediately set in. By the time she reached my office there was intense pain, and, of course, there was inflammation outside as well as inside, but the principal trouble was with the pulp. I went down to a drug store underneath my office, procured two leeches, applied one; when it was satisfied it dropped off, I applied the other and withdrew all the excess of blood in the parts, applying the leech over the end of the root on the gum. This occupied about three-quarters of an hour. Afterward applying locally a soothing lotion. A few days afterwards the pulp and surrounding parts seemed well and I did not see her again for two or three years afterward. I saw her last within two years, and the pulp is still alive. It will respond readily to either heat or cold, and to all appearances it is as good a tooth as she has of the set. I think that oftentimes we have pulpitis from a traumatic injury or a blow, and that it can be relieved in different ways and the pulp still remain alive and regain its normal condition.

Often we may have inflammation of pulp tissue caused by irritants reaching the organ through a carious cavity, and the condition may have disturbed the pulp for one, two or even three days, and still that inflammation may be relieved and the pulp retained alive by careful treatment. I shall have to take issue with Dr. Crouse and others, and I am surprised to hear Dr. Crouse say what he did in regard to the case reported by him this evening. He has turned around won-

derfully. It is only two or three years since he was saving such pulps as he has told of removing to-night. I think his cataphoretic machine is doing him injury. He is playing with it too much.

Again, with reference to cataphoresis and the benumbing of the pulp and removal before liquefaction has taken place at the attenuated ends, it is impossible for him or any other man to remove a live pulp clear to the end of a tortuous canal without lacerating and leaving a portion in the apical end. And those are the canals from which it is difficult, even when liquefaction has taken place, to remove a pulp, and if he could see many of the canals that have been exposed in different ways and how peculiarly formed they are, he would know that he could not reach there to do the work even with the aid of his cataphoretic machine. If he could have seen, as some of us did last summer at Saratoga, some pulps reformed of a gelatinous matter, filling the original pulp-canals, and then the tooth substance itself dissolved away and leaving that reformed body or mass the exact shape the pulp was in its original condition, he and everyone else could see that it would be impossible to remove the pulp that was fast at the farther end from where you are working unless the tissue had softened, unless it could be removed in bulk without hindrance.

In regard to "deep seated pulpitis," I cannot understand the term. Pulpitis is an inflammation of the pulp. Deep-seated, where? We cannot go any deeper. But if we have pulpitis of long standing the inflammation will extend through the apical foramen, and then we will have apical pericementitis, and by percussion we get a sensation, but so long as the inflammation is within the tooth there is no tactile sense whatever. If we have three pulps exposed on the same side of the mouth, whether upper or lower, or part upper and part lower, and the patient is aware of it, and we touch one of them, the patient cannot tell which one is touched. There is no tactile sense. If there is peridental inflammation, however, the moment we touch the right tooth we have the complaint of soreness.

Dr. C. N. Johnson.—Since the recitation of cases seems to be in order, I will refer to one that I have recently had. It relates to the subject of pulpitis. The question has arisen as to the difficulty of diagnosing these cases. It is difficult sometimes to locate the pain. Patients frequently refer it to some remote point. A lady came to my office early in July

saying that she was having trouble on the right side, pointing to the interproximate space between the second bicuspid and first molar. She said the pain was located there. I made a careful examination and could find no cavity. The pain was not severe and I told her it was probably only temporary. While I was absent from the city she had a recurrence of the pain and had the tooth examined by some other dentist, and he was under the impression that there was a cavity in the first molar. However, she did not have anything done, and came to my office one day after I returned. She came in the midst of excitement and began to take me to task for overlooking a cavity and allowing her to suffer this pain. She pointed out the tooth which she thought was giving the trouble. She pointed definitely to the second bicuspid, I examined it, and could find no cavity in either the first molar or second bicuspid.

My method of diagnosing these cases is this: Instead of cold I use heat. I take a cone of heated gutta-percha, which is tenacious and better than a hot instrument. It will cling to the surface of the tooth. I applied this to the second bicuspid and she flinched. I said, "Is that the character of pain you have been suffering?" She replied, "No." I then went from one tooth to the other until I came back to the third molar, which had a large oxyphosphate filling in it. When I applied the heat to it she flinched again, and exclaimed, "There, that's the tooth. I told you all the time it was that one," and she put her finger on the second bicuspid. I drilled through the oxyphosphate filling and struck a case of pulpitis. I destroyed the pulp and this was the end of the trouble. This is another instance illustrating the fact that we cannot take a patient's word as to what particular tooth is giving trouble. We must find it out ourselves. The rule I follow is to test one tooth after another. The patient will flinch when a living tooth is touched, but it will not be the same character of pain that they have been suffering. It is momentary and passes away. But the moment you strike the right tooth, they will say, "That is the kind of pain I have been suffering."

Dr. J. N. Crouse.--I do not want to be understood as saying that it is my practice to kill every tooth which has an exposed pulp. I did not go into a full explanation of the case that I have reported to-night. I was dealing with the general run of cases, particularly those patients who come and call us out of bed at night in order to have their sufferings

alleviated. Those of you who do not have your offices in connection with your residences do not have so many cases of this kind. When a man comes to you suffering terribly with toothache you have to do something, either destroy the pulp or get rid of the pain. I have capped many pulps where there was toothache, and they were successfully capped. I was alluding to a filling where a patient came in and the tooth had been filled, yet there was some pulpitis. You search around until you find the tooth which is causing the trouble.

Western Dental Journal.

TAKING IMPRESSIONS AND FITTING ARTIFICIAL DENTURES.

By Dr. W. T. MAGILL, Rock Island, Ill.

First provide every article that will be needed in taking an impression. A good supply of impression trays or cups of various shapes and sizes should be at hand to choose from. The cup should be as nearly as possible the size and shape of the alveolar ridge. If an upper impression is to be taken, seat your patient in the operating chair in a nearly upright position, tipped a little back. Spread a large white, clean napkin over and in front of the patient. Fasten it around his neck to prevent clothing from being soiled with water, wax, plaster, or any other material you may use. Now examine carefully the mouth and jaw, noting any peculiarities, protuberances, undercuts, hard and soft points, feeling with the index finger to ascertain how much the soft parts yield to and the hard resist pressure. The soft parts will need compression in proportion to the amount of yielding, and the hard parts will need easing in proportion to the amount of resistance. Select an impression tray of proper size and form. Everything being in readiness, we take our modelling compound, or yellow wax, from the clean hot water, when sufficiently soft to work up into a form to correspond with the size and form of tray to be used. Fill the tray a little above the top of the rim, leaving the surface of the wax or modelling compound smooth without any folds or creases; rewarm the surface over a spirit lamp, Bunsen burner, or by dipping it in hot water. Then quickly, dexterously and skilfully place

it in the mouth, by "placing the heel of the tray in against the right corner of the mouth, and with the index finger of the left hand stretch the left corner of the mouth till the tray slips in." Now with a quick movement of the tray held in the right hand, press steadily and firmly upward and slightly backward, at the same time being careful to observe that the mucous membrane is not folded in between the impression composition and alveolar ridge, which sometimes occurs, particularly in taking impressions of the lower jaw. This can be overcome by distending the cheek with the index finger of either hand placed well back in the mouth and pressing outward, keeping the pressure on the tray steady, avoiding all rocking motion. To hasten the operation at this point have an assistant inject with a syringe a little ice cold water around the margin of the tray, tipping the head of the patient a little forward to avoid choking. When sufficiently hardened, remove by gently working the tray in a somewhat rotary motion with the right hand, and distending the cheek and muscles with the index finger of the left hand till the atmospheric pressure is relieved, then remove in the same manner that it was inserted, being careful not to drag, bend or break by using too much force, or being too hasty.

A perfect impression can be relied on in proportion to the amount of resistance required to overcome the atmospheric pressure. An impression which does not adhere firmly to the roof of the mouth or alveolar ridge, cannot be relied on to give satisfactory results, while fairly good results can be obtained from impressions taken in wax, gutta-percha, modelling compound and plaster of Paris alone. The following process is recommended for a more perfect impression :

Take an impression in wax or modelling compound, preferably the latter, trim off the surplus or overhanging portions, warm the margin all around and press outward about a line ; the heel or posterior part of the impression should be pressed or turned up as much as three lines while this part is still warm and soft. Should it become hard or unyielding, immerse the posterior palatal portion in hot water to soften. Now mix plaster of Paris of best quality (sifted) in a gill of warm water, in which 10 grains of salt has been dissolved, to the consistency of thick cream ; fill the impression about half full, being careful to have every part of the surface covered with plaster ; reinsert it in the mouth as above described ; press firmly into position without rocking ; hold till the plaster that remains in the rubber bowl will crack or break

without crushing, then remove as before directed. Should there be any protuberances or undercuts the plaster (being very thin) will break or crack in withdrawing, and can be replaced and form a perfect impression that can be fully relied on for all practical purposes. Should there be any imperfections in the plaster, air bubbles or faulty places, chip out the plaster and refill as before and try again.

In following this method a minimum amount of plaster is used, and seldom if any overflows into the mouth, consequently no retching or irritating of the soft palate is produced, as is often the case when plaster alone is used. Salt is used for a dual purpose, viz., to hasten the setting of the plaster, and make it more brittle, a valuable quality where undercuts occur, or a partial impression is being taken; also, it diminishes the expansion of the plaster. After the plaster is sufficiently dried it should be stained with a thin solution of shellac varnish. When dry, immerse in a bowl of soapy water for five or ten minutes, then fill immediately, and there will be no sticking of cast to impression. Some operators simply immerse the impression in clear water without staining. Where the rugæ are deep or there are undercuts, staining is valuable in determining where the line of separation is. "Plaster stirred longer than is required to thoroughly saturate it with water, or where an extra quantity of water is used, the expansion is correspondingly greater," hence this often accounts for many rocking misfitting plates.

It is not always possible to get sufficient cohesion in a lower plate to retain it in its position during the act of mastication. Of the many devices which have been resorted to, to assure better cohesion, some prove beneficial; many are worthless. Experience teaches that the greater the surface covered the plate will be more likely to serve the purpose for which it is designed. I remember to have read in one of the old journals in regard to fitting lower plates, "trim off all you think it will bear, and then just a little more, and your plate will be about right." Now, I would say, add on all you think it will bear and just a little more, and in very many cases you will be charmed with the result, though not in such manner as to chafe or cut the muscles of the cheek. Upper plates can often be materially improved by being formed in the same manner.

TREATMENT OF STOMATITIS.

1. *Stomatitis Aphthosa*.—The ulcers must be frequently touched with a cotton swab dipped in one of the following solutions :

	R.	Sod. salicyl	...	...	20 0
		Aqua distill	...	...	100·0
or,					
	R.	Sod. borici	...	...	3·0
		Sod. salicyl	...	...	5 0
		Tinct. myrrhæ.	...	..	4 0
		Aqua distill	...	...	30·0
or,					
	R.	Sol. chloric	...	...	6·0
		Aqua laurocer	..	...	15·0
		Syr. Althea	...	...	25 0
		Decoct. papav	...	...	200·0

The patient must drink only boiled or sterilized milk.

2. *Stomatitis Erythematosa*.—If the inflammation of the mucous membrane of the mouth is associated with teething, the mouth must be frequently cleansed, particularly after meals. Use for this purpose the usual boric acid solution, or the following:

	R.	Sod. boric	...	...	2 0
		Sod. bicarb	...	...	4·0
		Aqua distill	...	...	100·0
	M.	Ft. sol.			

3. *Stomatitis Ulcero-membranosa*.—In this form potassium chlorate gives the best result, and it should be used internally as well as locally. For a child, five to ten years old, a dose of 2 grm. a day for internal use is sufficient.

	R.	Potas. chlorici	...	...	5·0
		Mel. rosat	...	...	20·0
		Decoct. salep	...	...	80·0

M. Sig.—A teaspoonful every two hours.

Paint the ulcers with following :

	R.	Potassium chlorici	...	...	4·0
		Mel. rosat	..	...	10 0
		Glycerin	..	...	20·0

M. Ft. sol.

In any stubborn cases dilute tincture of iodine should be used,

R.	Tinct. iodi	...	...	10·0
	Glycerin	...	...	20·0
or				
R.	Potas. permang	...	...	0·05
	Aqua distill	...	...	75·0
M.	Ft. sol.			

4. *Stomatitis Gangrenosa*.—This is the most severe type of the diseases of the mucous membrane of the mouth, and calls for energetic treatment. Above all it is necessary to thoroughly cauterize the gangrenous portions. For this purpose chlorcalcium is to be preferred, but it must however remain in contact with the ulceration only for a few minutes, and be followed at once by irrigation to remove every particle of the chlorcalcium which may have remained behind. The cauterisation must be repeated twice daily. In the meantime the patient should frequently use a strong decoction of cinchona as a gargle. In less intense cases cauterization with the following may be sufficient:

R.	Naphthol	...	...	10·0
	Sod. sulforicinat	...	...	90·0

and the following gargle may be freely used.

R.	Sod. bicarb.			
	Saccharin	..	... aa	1·0
	Acid. salicyl	...	...	4·0
	Spts. vini	...	...	200·0

M. Sig.—One tablespoonful to a glass of water for gargle.—*Die Therapie der Gegenwart*, 1896, xxxvii., 690.
—Translated in *Pediatrics*.

THE RELATION OF DENTISTRY TO GENERAL PRACTICE.

At a meeting of the Nottingham Medico-Chirurgical Society Dr. Porter read a paper on the above subject. Many medical men considered that they were in no way responsible for the care of their patients' teeth, but there were many questions and problems lying on the borderland of dentistry and medicine. The medical attendant could often save patients from the effects of their own ignorance by urging the necessity of a periodical examination of the teeth. This was especially true in regard to the teeth of children. The pathology of

dental caries was briefly discussed to show that it would not be in any sense of the word an inflammation. In considering the immunity of certain persons from dental caries Dr. Black's recent experiments were quoted as showing that it did not necessarily depend upon the density or per-centage of lime salts contained in the teeth. The preventive treatment of caries was shown to consist chiefly in a strict attention to oral hygiene, and extracting in overcrowded mouths, constitutional remedies being of no direct practical value. Hypoplasia of the enamel, its occurrence, its constitutional origin, and its probable causes were touched upon. General anæsthesia in dental operations was the next question discussed. It was pointed out that for the great majority of such operations nitrous oxide fulfilled all requirements. Should prolonged anæsthesia be required, the preference was given to nitrous oxide, followed by ether. The use of chloroform was strongly deprecated, statistics being given to show the high percentage of deaths from the use of chloroform in dental operations. The question of posture was also gone into from the standpoint of the dentist and the anæsthetist. In conclusion the severe constitutional symptoms attending alveolar abscess were mentioned, their true cause often being overlooked.

THE UPBUILDING OF THE PROFESSION.

By H. W. HARVEY.

Dentistry is yet in its infancy, and like all other great enterprises has had its struggle for recognition, until now it is one of the leading professions of the age and has entered upon an ever increasingly brilliant future. Men are devoting their lives to this work and the public is beginning to realize and appreciate their services.

The upbuilding of the profession of dentistry has taken place almost wholly during the last half century, and the growth to its present magnificence may be attributed to four causes:

1. Improved Colleges.
2. Dental Societies.
3. Dental Literature.
4. Science and Invention.

These four, by stimulating thought, encouraging investigation and research, and creating a demand for higher training, have so uplifted dentistry as to make of it a respected and dignified profession.

The colleges by raising their standards and lengthening their courses, have shut out the illiterate from their ranks.

The societies are educating their members by careful discussions on practical subjects of great importance, and have opened up channels for the exchange of ideas and the gaining of knowledge.

Literature in the form of excellent standard books is being added to the dental libraries, and in the form of journals placed within reach of all who are desirous of improving their knowledge with their practice.

Many of the great scientific facts which are being unfolded to the world are made of practical value to the dentist through wonderful inventions.

Thus, as we stand on the threshold of another century, may we not look forward through the long vista of its years hopefully contemplating the glorious future of this our chosen profession? Will not its increasing excellence continue? Will not the profession occupy a higher plane in public estimation? Yes, certainly; and truly shall those, the fathers of our profession, be repaid by the appreciation of their efforts and their great good to the human race.

Dental Journal.

HEREDITY AND CRIME.

Professor Belman, of the University of Bonn, relates the career of a notorious drunkard who was born in 1740 and died in 1800. Her descendants numbered 834, of whom 709 had been traced from their youth. Of these 7 were convicted of murder, 76 of other crimes, 142 were professional beggars, 64 lived on charity, and 181 women of the family led disreputable lives. The family cost the German Government for maintenance and costs in the courts, almshouses, and prisons, no less a sum than 1,250,000 dols.; or in other words, just a fraction under 1,500 dols. each. It would probably, says the *Medical Record*, be difficult to find a more remarkable example of the transmission of hereditary defects.

THE ANTI-QUACKERY LEAGUE.

Almost without exception, the so-called "anti-Societies" are directed against something which is good, but there is no disputing the fact that the "Anti-Quackery League" is directed against something which is essentially bad. It is seldom that an association has been organised with such high prospects of accomplishing great services for the benefit of the public as the one under discussion—to educate the public in the composition and nature of quack concoctions, to indicate the extent to which they are being duped by the artful purveyors of the latter, and to afford them the means of protecting themselves against the wiles of quacks—these are the main objects and aims of the organisers of the Anti-Quackery League. And it must be confessed that their crusade is in some respects a noble one. Purveyors of quack commodities have never displayed much zeal for testing declamatory statements against their messes in a Court of Law ; but still the programme adopted by the League is one which is apt to expose the latter to such a contingency, and it would be in the highest degree calamitous were the League to meet with a reverse at the Courts. However, we trust, whatever the risks may be, that the League will fearlessly carry out its work. We have received from the honorary secretary, Dr. W. Abbotts, a copy of the first pamphlet, a series of which the League intends to issue. It deals with "Handysides' Consumption and Cancer Cure," and throws a flood of light upon the ways and wiles of this quack. The distribution of this pamphlet among the editors of the journals whom Handysides supports with his advertisements should not be without good effect. We understand, also, that other pamphlets are in preparation, and will deal with quack advertisements and testimonials, Pink Pills, Homocea, and other notorious nostrums. The committee of the League is a highly representative one, including, as it does, gentlemen in various professions and callings besides that of medicine, the object being to show that quackery ought to be combatted on public, and not merely on class grounds.

NEW OPERATION FOR CLEFT PALATE—
TWO CASES.

FIRST CASE.

Mr. Arbuthnot Lane operated on a child, *æt.* four weeks, affected with a complete cleft of the hard and soft palate. The gap between the edges of the cleft was very considerable and the septum, which deviated considerably from the middle line, was continuous with the margin of the cleft on one side. The child, like most of these infants, was very difficult to feed, and was small for its age. After it had been placed under the influence of an anæsthetic, the gag, which Mr. Lane always uses, was fixed in position; this gag is a spring gag, and by means of minute teeth attached to the small plates, which rest on the gum at its extreme posterior limit, is absolutely self-retaining and requires no attention after its introduction. The tongue was drawn forwards by means of tongue forceps. An incision was then made through the mucous membrane and periosteum along the alveolar margin of that side to which the nasal septum was attached, this was carried back along the extreme outer limit of the soft palate, then along its lower free margin by means of an elevator, the muco periosteum was turned inwards off the bone, great care being taken not to damage the continuity of this flap with that of the mucous membrane covering the septum nasi which formed its attachment; as this flap was being turned back the descending palatine vessels and nerves were raised in a single periosteal sheath, this sheath being, with its contents, cut as long as possible, a Spencer Well's forceps was then applied to it and it was twisted; by this means practically all hæmorrhage was avoided. The mucous membrane with the thick subjacent layer of glandular and lymphatic tissue was then raised from the under surface of the soft palate by means of a knife with a round edge, made in this form in order to avoid puncture of the flap. As a result of this a large single flap formed by the mucous membrane and subjacent soft parts from the under surface of the roof of the mouth on one side was raised and remained attached to the margin of the cleft in the hard palate on the opposite side and through this incision the muco-periosteum was raised from the bone by means of an elevator for about

a breadth of a quarter of an inch ; a thread was then passed through the tip of the uvula on the same side, and, by pulling on this, the posterior surface of the soft palate was exposed ; an incision was made through the mucous membrane on this aspect parallel to the margin of the cleft and at a distance of about an eighth of an inch, the intervening mucous membrane was raised and turned inwards from the back of the palate forming, with the raw surface, an oblong flap. The edge of the large flap was introduced beneath the edge of the elevated muco-periosteum covering the hard palate on the opposite side and was retained there by a double row of sutures : the portion of the flap corresponding to the soft palate was brought into accurate apposition with the oblong raw surface, already referred to, on the opposite side of the cleft and was retained in a similar manner by a double row of sutures. By means of these procedures the flaps were brought into continuity over a considerable area, and were placed in such a position that immediate union could take place very readily, since the double row of sutures obviated any movement of the intervening raw surfaces upon one another, and there was absolutely no strain or tension upon them.

SECOND CASE.

In the second case operated on by Mr. Lane the condition of the patient lent itself much more readily to operation, since there was, associated with a complete cleft in the hard and soft palate, a complete hare-lip, the premaxillary bone being fixed to the under surface of the tip of the nose ; on this account the aperture through which the operation was performed was very large, thereby facilitating very considerably the steps of the operation, which were similar to those already described. Later, Mr. Lane said he intended to close the lip on one side of the premaxillary bone, in order to afford it a vascular supply other than through the septum, after which he would cut through its attachment to the septum nasi, trim away the mucous membrane, &c., covering it and the adjacent portion of the superior maxilla, retain the premaxilla in position by means of sutures, and close the remaining cleft in the lip.

The operations he had just performed on the palate were rendered possible, he said, by the use of minute needles, which were manipulated by means of a needle-holder with very small jaws, since it would have been impossible to do them with ordinary cleft palate instruments ; the amount of hæmorrhage accompanying these operations was, he pointed

exceedingly slight and it was apparent that the children sustained but little shock (in fact both the little patients seemed to enjoy their food a short time after the operations). He also pointed out that the advantage of performing this operation at this early period of life was enormous since by separating the nose from the mouth, the surgeon at once restored to it its normal physiology, and brings to bear upon the naso-pharynx and bones about it the mechanical force exerted by the air in its transmission through this space without which it and the structures depending on it are unable to become properly developed. He considered that the operation usually performed later in life had no scientific justification and was probably delayed to such a late period because of the inefficiency of the apparatus used for the purposes. Later on he said, the parents of the children would be instructed to endeavour to make each child transmit its breathing air through the nose as much as possible.

The Medical Press.

INARTISTIC DENTISTRY.

An all-gold crown which is conspicuous is not only vulgar in appearance, but is one of the humiliating disfigurements of modern dentistry. It is a public exhibition of a dental reproach. It is not constructed upon the *ars celare artem* principle. If there were no other objections to the use of all-gold crowns, this would in itself be sufficient. There is no possible case in which this disfigurement cannot be avoided. The conspicuous gold crown should be relegated as the exclusive distinction of people of vain and vulgar taste, and dentists who run fads on the basis of pure finance. It is, moreover, the duty of the dentist to educate vulgar people in this direction; yet the operator who would be ashamed of his work if he put a white porcelain lateral beside a brown cuspid, does not seem to realize his inconsistency in making an all-gold crown neighbour to human enamel. In another way there is too much crowning. Scores of fairly good molars are ground down, which should be filled. It is possible, with proper treatment and skill, to restore such teeth to usefulness and natural occlusion by good amalgam, if not by gold, and

in many cases amalgam is better than gold. The day is not far distant, we trust, when these gaudy and glittering defects of dentistry—fillings as well as crowns, and indeed the insertion of any metal in human teeth, will be looked upon with the same curiosity as to-day we regard the use of human teeth and the ivory of the tusk of the elephant and hippopotamus for artificial substitutes.

Dominion Dental Journal.

THE TEETH OF TO-DAY.

Caries of the teeth is by no means a new disease, as the examination of Egyptian mummies 2000 years old shows; but taking modern times and civilised communities there can be no doubt as to its increasing prevalence in the present generation. This statement is based upon the results of a series of examinations of the teeth and jaws in skulls of different periods, both British and foreign, by clinical observation and the law of supply and demand, the number of dentists increasing in a ratio out of all proportion to the increase in the population. Some think, and perhaps with a certain amount of truth, that this increase in disease is more apparent than real, as so much more importance is attached to the teeth both from a health and æsthetic point of view; but that former generations appreciated good teeth may be gathered from the works of Smollett, Fielding, Mrs. Radcliffe, and others, in which the heroine is invariably described as having "pearly teeth." Our premisses being granted, it behoves us to endeavour to discover the causes of this degeneration with a view to their removal where possible. "Degeneration may be defined," says Ray Lankester, "as a gradual change of the structure in which the organism becomes adapted to less varied and less complex conditions of life; whilst elaboration is a gradual change of structure in which the organism becomes adapted to more and more varied and complex conditions of existence. In elaboration there is a new *expression* of form corresponding to new perfection of work in the animal machine. In degeneration there is *suppression* of form corresponding to the cessation of work." Degeneration is doubtlessly taking place in the teeth and jaws of man.

In structure and character the teeth are becoming more and more faulty, having, perhaps, pits in the enamel and jagged edges—honeycombed teeth—fissures, grooves, and other imperfections not traceable to disease. Microscopically, the dentine often presents cavities in its substance known as “interglobular spaces” and due to imperfect calcification, all of which lesions render them liable to caries. It was until quite recently believed that teeth which easily fell a prey to caries were deficient in lime salts, but the elaborate experiments of Black in America and Charles Tomes in this country have disproved this view. Numerically the teeth are becoming less, the wisdom tooth often failing to make its appearance, and perhaps the absence of the superior lateral incisor is more frequently observed. The shape of the jaw is changing from the square to the V-shaped, the so-called “educated jaw,” and this is generally associated with irregularity, which is a potent predisposing cause of caries. The main factor of this degeneration and the prevalence of caries is to be found in the modern mode of living and civilization generally. Let us take the life-history of a tooth temporary and permanent. First, in its embryonic stage, the mother while pregnant, if in the lower class, must necessarily go about her work as usual, and added to that there are those frequent strikes entailing so much privation and anxiety. What sort of children does one expect these women to bear? Weak, sickly, puny, probably rickety, and certainly with mal-developing teeth. And if in the higher ranks of life the mother still pursues her round of gaiety and fulfils her social obligations. Now, would Lord Rosebery or any breeder of horses allow his mares when in foal to work? Moreover, it is becoming less and less common for mothers in the upper classes to suckle their children, and all this must have a deleterious effect on the developing teeth.

Later, when the second set are erupting or not yet fully calcified, our children lead a very different life to those of our ancestors—far more excitement, late hours, cultivation of the intellect at the expense of the physique, and cramming at school all tend to injure the developing teeth both by interfering with nutritional changes and locally by bringing about an unhealthy condition of the mouth. By the way, I think that sweets as a cause of decay have been much maligned. Sugar is the natural food of children; if not, why should the taste be so universal and why sugar in mother's milk? I believe they do harm only when causing dyspepsia. And

now I come to adults, in whose teeth it is generally maintained that vital action in the pulps has no influence upon the courses of caries, although I am somewhat of a sceptic on that point. Here, again, the high pressure of modern civilized life is an important factor, both as to the occurrence of caries in the individual and the transmission of degenerate teeth to the offspring. The constant whirl of excitement, whether in the pursuit of pleasure or gain, accompanied too often by the neglect of physical exercise, brings about a state of nervous exhaustion and frequent attacks of dyspepsia. And during all these periods how little work the teeth and jaws have been called upon to do with our modern cooking? This disuse of the masticatory apparatus acting through successive generations has produced degeneration and consequent proneness to disease. I have still one more predisposing cause to mention which ought not to be overlooked from a scientific point of view, though of little value from the practical side, and that is "natural selection." Men marry women with the ovoid face with narrow jaw, and not those with square massive jaws, and, further, those teeth of an azure colour and translucent appearance, which are so frail, are generally admired, not the strong yellow teeth.

The Lancet.

TOOTH POWDER.

Dr. N. R. Morton, Sr., gives the following formula for a tooth powder, which he claims is non-injurious to the enamel:

B. Precip. chalk	...	...	6 oz.
Pulv. cast. soap	...	...	2 oz.
Pulv. borax	...	...	2 oz.

M.

Add perfume and sugar to sweeten.

Pacific Stomatological Gazette.

TO RETAIN THE RUBBER-DAM.—Use sandarac varnish instead of the painful silk ligature. This is one of the most valuable items I have ever received, and if it has not been universally adopted it should be.

Dr. Bergstresser.

WHAT CAN WE DO FOR TEMPORARY TEETH?

Dr. B. J. DE VRIES, Holland, Mich.

Because the deciduous teeth are only for temporary service is no reason why they should not be properly cared for and filled. We can expect far better permanent teeth, and better development of the jaw where the deciduous teeth are well cared for and properly exercised, and it should be the aim of every dentist to give this subject attention.

The proximal surfaces of the deciduous molars are most frequently carious, and if not filled in time these spaces will form places for the microbes of fermentation and putrefaction. Of all suffering we are called on to relieve, it is in this region, in connection with the first permanent molar.

It is my practice to fill these temporary teeth with cement as soon as possible after decay has attacked them.

I never extract them if I can combat the difficulty in some other way. Very often I have found after much ulceration fungus growth on the gums, and the apical portion of the roots exposed. As also in the incisors, I nip off the exposed roots, leaving the crowns to fill up the space and favour the expansion of the jaw.

I have heard of dentists devitalizing a deciduous tooth with arsenic and filling the roots with gutta percha. I never attempted such an operation because of the difficulty of managing children, or manipulating these delicate organs.

Wherever I find it necessary to save a deciduous tooth, where the nerve is decomposed, I render it aseptic with peroxide and cloves and carbolic acid half and half. After that I fill the roots with shreds of cotton impregnated with aristol dissolved in chloroform, and fill the cavity with cement.

I fill these roots with cotton, because it is so difficult to dry with hot air, and if there should be any septic matter left in the canals, cotton will absorb it, and the aristol will render it antiseptic.

What to do with the first molar is another perplexing question. A great many of our young patients have to lose this tooth at an early age. Many are extracted that should be saved.

This is the most useful and best adapted tooth for mastication of all the dental organs. On its loss or retention hinges many intricate problems of irregularity and articulation. When the structure of this tooth is fairly good, and if attacked by decay at all, the most favourable surface is invariably the anterior proximal; the reason for this can be readily seen when there is decay in the posterior proximal surface of the second deciduous molar. Food will be impacted between these two teeth, and through fermentation the first molar will be here affected.

Should such teeth be filled with a permanent filling? We believe that if the tooth structure is good, and there is a chance to make a good operation, we should not hesitate to fill with gold; but the chances are that we find decay at the seventh and eighth year, and the second deciduous molar will not be shed till the twelfth year, which makes it difficult of access.

I fill this tooth with phosphate filling, and as soon as the second deciduous molar is shed, and before the second permanent bicuspid is erupted, I fill the first permanent molar with a permanent filling. This method obviates the necessity of cutting through the grinding surface, and many times can be accomplished with the rubber-dam. For, let us remember, all operations on the teeth of children should be conducted with the utmost of care and as painlessly as possible.

Register.

RELATION OF DENTAL OPERATIONS TO PREGNANCY.

By FRANK ELLIOTT, M.D., Kansas City, Mo.

It is with genuine pleasure to the American women that the old saw, "A tooth for every child," is becoming an obsolete phrase. We now see the well-developed child-bearing woman of forty years of age with a set of serviceable teeth, a good digestion, and a well-balanced nervous system. We are largely indebted to the careful and painstaking dentists for this changed condition. It is only within the last decade that dental work was allowed on the pregnant woman, not from any known injury to her, but simply because she was

hedged about by superstition and ignorance. I am speaking now of the great masses of women, not of the favoured few who lived in the large cities, and who have had the advantages of a more thorough intercourse with the world.

It was formerly supposed that to taste of her own blood would cause her to abort ; therefore, an extraction of a tooth was to be avoided.

Abnormal conditions of the mouth and teeth during pregnancy may occasion considerable distress and inconvenience. The gums may become soft, and a condition known as "white caries" is often seen in the teeth ; in other cases the gums are reddish in colour, and are retracted, exuding a thin fluid, or pus, from around the neck of the tooth. This condition does not imply neglect of cleanliness, but results from the altered secretions of the oral and buccal cavities. The saliva early in the day is of an acid reaction, and the more profound and long-continued the nausea, the more acid becomes the saliva and the contents of the stomach. These conditions have a potent influence upon the development of caries of the teeth. Softening of the dentine of the upper bicuspid and molar is sometimes observed, apparently because they are the teeth against which fluid is most forcibly ejected in the emesis of pregnancy.

Affections of the nerves of the face and teeth are often referred to pathological conditions in the mucous membrane of the stomach, and are sometimes purely reflex from an ulcerated cervix uteri. These conditions must be overcome by the appropriate remedies ; and here is where the scientific dentist comes in to take the major part of the responsibility of the preservation of the teeth of these patients. It is the duty of every physician to send a pregnant patient to her dentist for examination ; and it is perfectly right and proper for a dentist to ask to be allowed to inspect the teeth of his regular customers ; your patients think more of both physician and dentist for these little courtesies extended to them. On account of its easy removal and non-irritating character, I would advise plastic filling. If the cavity is too large, or if from any cause the tooth cannot be saved, there is no valid reason why it should not be extracted. It is well to remember that the mother has no power to affect her offspring only physiologically. She does not have the power to deform the child at will, or change its hair from red to black, but she does have the power to affect its nervous system ; what could

be more irritating during the months of gestation than to have one or more teeth that are decaying or ulcerating? I do not know of an operation within the sphere of dentistry that could not be undertaken with perfect safety. Of course, there are some responsibilities to be assumed; an ulcerated tooth has been known to produce an abortion; after a night of suffering, when the pains become almost unbearable, the patient decides to have the tooth removed. The uterus may have become dilated or dilatable, and an abortion well under way before the tooth was extracted, but the cause of the mishap is attributed to the dental work.

There is dilation of the heart cavities, and hypertrophy of the left ventricle in the pregnant woman, and for this reason it is dangerous to give opium in any form to such patients.

Medical Arena.

THE TREATMENT OF CHILDREN.

By JAMES P. NICHOL.

Decay of the deciduous teeth is something that should be promptly attended to.

Many people think that these teeth, being only temporary are not worth the trouble or expense of professional attention, but we, as students, are taught that it is a matter of the gravest importance that they be well cared for, as they have much to do with the successful formation and eruption of the permanent set.

In treating the teeth of the adult, we are under great responsibility, but in filling the teeth of the young, we are called on to perform even a more important duty, as the tooth structure is not so thoroughly calcified.

For this reason we should assist nature in preserving these tender organs by guarding against their early decay.

Extraction is justly dreaded by both patient and dentist, and unless absolutely necessary, should not be resorted to.

At what time the temporary set should be extracted is an open and important question; no rule has been laid down as safe for the dentist to follow; he must be guided entirely by the conditions which present themselves.

If the teeth are removed in haste it is liable to produce irregularities of the subsequent teeth, which will be a

permanent irregularity, unless remedied at the cost of months of labour, suffering and expense. On the other hand, if they are not removed in time we may have the same result.

A child should not be given an anæsthetic if it can be dispensed with, particularly if the child is in good physical condition.

Never deceive the child by saying that 'it will not hurt,' when you know that it will. This will shock the innocent confidence of the little one to such an extent that it will never forget and never forgive the deception. Honesty is always the best policy. There are two conditions of mind under which the little patient may be labouring. It may have been told unwisely by a parent that "it won't hurt any," or it may have seen a playmate who has passed through the ordeal, and told that the pain was terrible, the dentist was rough, etc. Thus it is worked up to a very nervous state when the office is reached.

In either case the proper course to pursue is that of kind, gentle truthfulness, which will secure for you the child's confidence and respect. In all operations on the teeth, tell the child kindly that it will hurt a little, but only for a moment; that you will be as gentle as possible. Many children will respond nobly to such a moral tonic, and will have very little or no dread of the dentist.

Penn. Dental Journal.

A NEW FILLING MATERIAL.

The combination of silex, oxide of zinc and gutta percha was found to be good to resist mastication; but the silex, being so gritty, the burnisher left a black mark on the surface of the filling. Many other combinations were tried, but did not meet with satisfactory results till I tried the combination of:

White gutta-percha	...	...	eight parts.
Aluminum filings	...	...	five parts.
Oxide of Zinc	...	...	one part.
Whitiennng	...	...	one-half part.

This admixture I have been very much pleased with, and have named it "Aluminized gutta-percha." It is easily manipulated, and holds its position in the cavity when firmly packed. I have not noticed any bulging, which is so common in the pink gutta-percha.

Dr. F. W. Bliss in the Pacific Stomatological Gazette.

Dental News.

JUSTICIARY APPEAL COURT—Tuesday, June 8.
(Before the Lord Justice Clerk and Lords Trayner and Wellwood.)

APPEAL—EMSLIE V. PATERSON.

This appeal was taken by Alexander Emslie against a decision of Sheriff Orphood, in the Sheriff Court of the Lothians and Peebles, in a complaint by W. B. Paterson, London, F.R.C.S.E., and L.D.S., honorary secretary of the British Dental Association, against the appellant. The cause originated by way of complaint under the Summary Jurisdiction (Scotland) Acts, 1864 and 1881. The complaint charged the appellant with having contravened the 3rd section of "The Dentists' Act, 1878," in so far as not being a person registered under that Act, and not being a legally qualified medical practitioner, he had taken or used a name, title, addition, or description implying that he was a person specially qualified to practise dentistry by one or other or all of the following methods—namely, that since October 1896 he had displayed a sign-board outside of the premises occupied by him at No. 1 Rankeillor Street with the words "American Dentistry, A. Emslie," thereon; that he had since that date a brass plate affixed to the railing outside the premises with the words "American Dentistry. A. Emslie;" that he had a brass plate affixed to the door of the house with the words "Dental Office" thereon; and that he exhibited a diploma purporting to be granted by "The Dental University of New York, authorised by the State Legislature, conferring on Alexander Emslie the degree of Master in Dental Surgery." The Sheriff convicted the appellant of the charge. The principal objection urged by the appellant was as to the relevancy of the charge.

Mr. Jamieson, for the respondent, maintained that the title "American Dentistry, A. Emslie," implied that Mr. Emslie was specially qualified to practice American dentistry.

Mr. Morrison, for the appellant, argued that the title referred to only meant the place where American dentistry was carried on.

Their Lordships made avizandum with the case.

Judgment was pronounced on June 12th in the appeal

by Alexander Emslie, 1, Rankeiler Street, Edinburgh, against a conviction by Sheriff Orphoot in a complaint by W. B. Paterson, hon. secretary of the British Dental Association. The complaint charged the appellant with having contravened the 3rd section of the Dentists' Act, 1878, in so far as not being a person registered under that Act, and not being a legally qualified medical practitioner, he had taken or used a name, title, addition or description implying that he was a person specially qualified to practice dentistry by one or other or all of the following methods—namely that since October 1896 he had displayed a signboard outside of the premises occupied by him at No 1 Rankeillor Street, with the words "American Dentistry, A Emslie," thereon; that he had since that date a brass plate affixed to the door of the house with the words "Dental Office" thereon. Other two methods of contravention were libelled, but these were found irrelevant by the Sheriff. He, however, convicted under the first two heads and imposed a fine.

The Court to-day set aside the conviction, and awarded the appellant ten guineas of expenses.

Lord Trayner said they were only now concerned with the complaint and conviction in so far as they proceeded upon the first and second methods. He was of opinion with regard to them that they were not relevant to infer a contravention of the statute libelled, and that the conviction should be set aside. It was to be observed that the statute in question nowhere provided that it should be unlawful for anyone to practise dentistry unless he was a medical practitioner or specially qualified for such practice. It might fairly enough be said that the statute contemplated that such persons would practise dentistry, for in their discouragement it provided that they should not be entitled to exact fees for any dental operation performed by them. What the statute did prohibit was any person taking or using the name "dentist" or "dental practitioner" or "any name, title, addition or description," implying that he was registered under the Act, or specially qualified to practice dentistry. The appellant did not call himself a "dentist" or "dental practitioner." So far it was clear there had been no contravention of the statute on his part. He had exhibited a sign board or brass plate on his premises with the words thereon "American dentistry. A. Elmslie," and another on the door of his premises having the words "Dental Office." These words might, no doubt, be read as meaning that dental operations were performed in

these premises and performed by the appellant, but they contained nothing to imply that the appellant was registered under the Act, or that he was specially qualified to perform these operations. What the statute provided against was anyone using a name or description which was descriptive of a registered or qualified practitioner, who was not in fact entitled to the description which the assumed name or description implied. Here the appellant had assumed no title whatever. He did not call himself a dentist, dental practitioner, dental surgeon, or licentiate in dental surgery. If he did so he would contravene the statute. But as he added nothing to his own name (which was the thing the statute prohibited) by way of title, addition, or description, implying that he was registered as a dentist, or *that* he possessed or claimed to have any special qualification for the performance of dental operations. Neither "American dentistry" nor "dental office" could be said to be a name which the appellant had assumed, and neither was a title, addition, or description added to his name implying special qualifications for dentistry.

Scotsman.

DAMAGES AGAINST DENTISTS. NERVE-DESTROYING BY RED-HOT IRON.

The case of Garside v. Goldman and another came before Mr. Justice Cave and a common jury in the Queen's Bench Division, it being an action brought by Mrs. Adelaide Garside, a married lady, residing at Mallinson Road, Wandsworth, to recover from George Goldman and George Geary, described as dentists, carrying on business at Northcote Road, Clapham Junction, damages for personal suffering, caused through alleged want of skill at the hands of the defendant Goldman in filling a tooth improperly. Defendants denied that they had treated the plaintiff improperly, or that she had suffered any injury or damage.

Mr. Atherly Jones, Q.C. appeared for the plaintiff, while the defendants appeared in person. The plaintiff's case was that in May of last year she consulted the defendants with reference to her teeth. She saw Goldman, who informed her that two of her teeth required to be stopped, and he proceeded to stop them, but a day or two afterwards, the stopping came out. She went and told Mr. Goldman this, and he, told her that another of her teeth required stopping, and that the nerve would have to be destroyed. To destroy the nerve a

red hot iron was applied, and she endured intense agony. In consequence of her sufferings plaintiff again saw Mr. Goldman who told her that she was suffering from neuralgia, and prescribed for her. She afterwards, not getting better, saw another dentist, who removed the tooth as there was an abscess on the root.

Mr. J. Acheson, L.D.S., and Mr. Edwin Harrison, F.R.C.S., gave evidence that the plaintiff was improperly treated, and that the application of red-hot iron to destroy the nerve, might have done 100 years ago, but now was absolutely improper.

Mr. Oliver Canton, L.D.S., gave corroborative evidence.

Mr. Goldman, one of the defendants, stated that the plaintiff would not allow him to drill her teeth, which were filled according to her instructions. He told her that the teeth ought to be extracted, but she replied that she preferred to have them stopped. On a subsequent occasion when she called again and complained, he came to the conclusion that she was suffering from neuralgia. He was not a registered dentist. Mr. Geary was registered. He (Mr. Goldman) applied the red-hot iron to the nerve of the plaintiff's tooth.

Cross-examined by Mr. Atherley-Jones: How long have you been in business?—I was born in it. You think a dentist is born, not made? (Laughter). My father was a dentist, and I was brought up in the business.—We have heard of hereditary legislators, but not of hereditary dentists. How long have you practised as a dentist?—I have not practised at all.—Was this the first case you ever treated?—No, I have treated other persons.—Then you have been practising as a dentist?—As an assistant dentist.—You also practise as a barber?—That is my mother's business. (Laughter.)—You are an hereditary barber as well as an hereditary dentist? Did you practise your mother's business?—I gave her assistance at times. (Laughter).

Did it ever occur to you that the plaintiff had an abscess under her tooth?—I did not think that any gentleman could tell that. I still think it was a case of neuralgia.

Mr. G. Geary, the other defendant, a registered Dentist, denied that the plaintiff was improperly treated. His firm, he said, treated her case as one of neuralgia. They acted in accordance with the instructions of the plaintiff, who said that she only wanted her tooth stopped, and not extracted.

The jury ultimately returned a verdict for the plaintiff and assessed the damages at £10. Judgment accordingly with costs.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The following gentlemen, having passed the necessary examinations, have been admitted Licentiates in Dental Surgery :—

Ackland, Donald, Charing-cross and the Dental Hospital of London.
 Arnold, John Cressey, London Hospital and the National Dental Hospital.

Austen William Colmer, M.R.C.S. Eng., St. Bartholomew's and the Dental Hospital of London.

Bell, Robert John, Charing-cross and the Dental Hospital of London.

Brown, Charles Every, Guy's Hospital.

Brown, Ernest Chodwick, Guy's Hospital.

Brown, James Warburton, Charing-cross and the Dental Hospital of London.

Canton, Loftus Henry, Middlesex and the National Dental Hospital.

Coates, Frederick Arthur, University College, Bristol, and the National Dental Hospital.

Cook, Percy Herbert, Guy's Hospital.

Cooper, Albert, Guy's Hospital.

Cooper, Percy Henry Rogers, Charing-cross and the Dental Hospital of London.

Douglas, James Carfrae, Charing-cross and the Dental Hospital of London.

Duncan, Frank Hubert, Charing-cross and the Dental Hospital of London.

Everett, Charles, Middlesex and the National Dental Hospital.

Floyd, Walter, Guy's Hospital.

Forsyth, William Frederic, Charing-cross and the Dental Hospital of London.

Harrison, Sydney, Guy's Hospital.

Heath, Arthur Reginald, Charing-cross and the Dental Hospital of London.

Hey, Stephen Daniel, Charing-cross and the Dental Hospital of London.

Holmes, Robert, Gabriel Stuart, Guy's Hospital.

Jacobs, Jacob Michael Cecil, Guy's Hospital.

Jones, William Henry, Middlesex and the Dental Hospital of London.

Lees, Charles, Charing-cross and the Dental Hospital of London.

Lishman, James, Owens College, Royal Infirmary, and Victoria Dental Hospital, Manchester.

North, Benjamin, Owens College, Royal Infirmary, and Victoria Dental Hospital, Manchester.

Oddy, Alfred Ernest, Guy's Hospital.

Picnot, Ernest, Guy's Hospital.

Poundall, Alfred Ben, Middlesex and the National Dental Hospital.

Powell, Matthew Pearce, Charing-cross and the Dental Hospital of London.

Reading, George Frederic, Charing-cross and the Dental Hospital of London.

Robertson, Arthur Edwin, St. Bartholomew's and the National Dental Hospital.

Robinson, Robert Percy, University College, Royal Infirmary, and the Dental Hospital, Liverpool.

Rogers, David de Sola Cohen, Charing-cross and the Dental Hospital of London.

Roper, John Langdon, Middlesex and the Dental Hospital of London.

Rowe, William Francis, Charing-cross and the Dental Hospital of London.

Sadler, Bernard Frederick, Mason College, Queen's and General Hospitals, and the Dental Hospital, Birmingham.

Shedden, Arnold Ward, Mason College, Queen's and General Hospitals, and the Dental Hospital, Birmingham.

Smart, Edwin Herbert Jacob, Charing-cross and the Dental Hospital of London.

Smith, Edward Percy, Charing-cross and the Dental Hospital of London.

Smith, Edwin Wylde, Guy's Hospital.

Smith, Thomas William, Charing-cross and the Dental Hospital of London.

Stoner, John Walton, Owens College, Royal Infirmary, and Victoria Dental Hospital, Manchester.

Styer, Albert St. John, Guy's Hospital.

Summers, Gilbert Hamilton, Charing cross and the Dental Hospital of London.

Thew, Thomas Wilton, Middlesex and the Dental Hospital of London.

Tidswell, Oswald, Owens College, Royal Infirmary, and Victoria Dental Hospital, Manchester.

Wallis, Charles Edward, M.R.C.S. Eng., King's College, and the Dental Hospital of London.

Wallis, Elton George Whishaw, Guy's Hospital.

Westron, Henry, Charing-cross and the Dental Hospital of London.

Williams, Sidney Herbert, Charing-cross and the Dental Hospital of London.

Willis, Stuart, Mason College, Queen's and General Hospitals, and the Dental Hospital, Birmingham.

Wilson, Charles Albert, Guy's Hospital.

Wilson, George Edward, Charing-cross and the Dental Hospital of London.

Woodhouse, William Barnabas, M.R.C.S. Eng., Middlesex and the Dental Hospital of London.

Fourteen gentlemen were referred back to their professional studies for six months.

CRICKET MATCH.

Victoria Dental Hospital, (Manchester) v. Liverpool Dental Hospital, at Liverpool.

VICTORIA DENTAL HOSPITAL.

P. E. Holdsworth b. Wood	...	...	...	...	25
R. E. Lonie c. Penrhyn b. Quinn	...	...	...	...	3
P. S. Senior c. sub b. Quinn	...	...	...	...	0
H. A. Robertshaw (capt.) c. Penrhyn b. Bevington	...	...	...	...	10
J. W. Gibbons b. Holt	...	...	...	...	9
A. Sherrat b. Bevington	...	...	...	...	0
F. W. Horrocks c. Bradburn b. Bevington	...	...	...	...	2
H. Besford b. Bevington	...	...	...	...	0
J. Stelfox b. Wood	...	...	...	...	2
F. W. McKenzie c. Bradburn b. Wood	...	...	...	...	0
J. W. Sidebottom not out	...	...	...	...	0
Extras	...	...	...	...	19
Total	...	...	...	...	71

LIVERPOOL DENTAL HOSPITAL.

E. Bevington (capt.) c. Sidebottom b. Robertshaw	...	...	...	...	8
G. B. Wilson c. Sidebottom b. Robertshaw	...	...	...	...	2
B. S. Wood c. Sherrat b. Holdsworth	...	...	...	...	7
C. Quinn run out	...	...	...	...	4
R. Holt run out	...	...	...	...	9
A. Penrhyn b. Senior	...	...	...	...	17
F. Dennis c. Sherrat b. Robertshaw	...	...	...	...	0
F. A. Bradburn b. Robertshaw	...	...	...	...	0
G. Blight b. Besford	...	...	...	...	3
A. H. Bowkley b. Senior	...	...	...	...	4
W. A. H. Saul not out	...	...	...	...	2
Extras	...	...	...	...	12
					68

BOWLING ANALYSIS.

VICTORIA.

	O	M	R	W
F. J. Blight	6	1	9	0
H. C. Quinn	9	3	18	2
E. Bevington	7	1	16	4
R. Holt	6	2	7	1
B. S. Wood	3.4	2	2	3

LIVERPOOL.

	O	M	R	W
H. A. Robertshaw	10	3	10	4
P. E. Holdsworth	6	0	18	1
H. Besford	6	0	14	1
P. S. Senior	4.2	0	8	2

If an important tooth breaks off your plaster model, notch both ends slightly with the point of an old excavator, and, having carefully removed the chips, so that the broken ends come together accurately, mix some oxyphosphate very thin, and apply to the broken parts, and then press them tightly together; set aside to dry. In an hour you may lift the model by the tooth and it will not break.

J. Deinelt, in Office and Laboratory.

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

Re THE UNREGISTERED.

To the Editor of the "British Journal of Dental Science."

SIR,—On reading the letters of "G.M.," in this Journal of April 15th, 1897, and the letter of "Association," in this Journal of April 1, 1897, I was glad to see that some one is desirous that action should be taken, to protect the public against the wide-spread Dental Quackery that exists in the country. I have talked to others who also agree to this. Now I wish to suggest that a big "Dental Defence Association" be at once got up, as the gentleman of Brighton who signs himself "Association" proposes, for the purpose of prosecuting all unregistered men who infringe the Dentists' Act. The only qualification for membership should be that of registration, and if one thousand would join, and at the same time pay in, say a guinea each, then we would have a handsome sum to start with. A man could then be engaged something like the factory inspectors, to go from town to town, doing nothing but prosecuting where illegal practice existed. And a solicitor should be provided for him in each town, where he takes action. This man once on his travels would soon become a terror to Dental Quackery; and from the magnitude to which it has attained, I see no other method which can ever be effectual. A solicitor told me that if an unqualified man started in the legal profession, all the solicitors would at once be up in arms to prosecute him. As it is no use only thinking, or waiting for some one else to make a start, will any gentlemen communicate with me, with the object that we shall arrange to forthwith endeavour to form such an association which would be similar to the Medical Defence Association.

Yours truly,

J. W. CARMICHAEL, L.D.S.

Workington,
Cumberland.

June, 1897.

APPOINTMENT.

Mr. L. B. Myers, L.D.S. Eng. to be Hon. Dental Surgeon
to the "Cornelia Hospital," Poole, Dorset.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester
during the month of JUNE, 1897.

Number of Patients attended	577
Number of Extractions	380
Number of Extractions under Anæsthetics	98
Gold Stoppings	50
Other Stoppings	100
Miscellaneous { advice, temporary fillings, sealings, dressings, &c.	60
Gold and Porcelain Crowns	8
Inlays	
Total	1273

OSWALD TIDSWELL, *House Dental Surgeon.*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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British Journal of Dental Science

No. 709.

LONDON, AUG 2, 1897.

VOL. XL.

DENTAL MECHANICS.

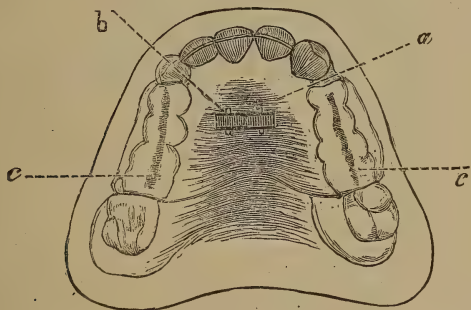
By HARRY ROSE, L.D.S., Eng.

APPLIANCES AND DEVICES FOR THE CORRECTION OF DENTAL IRREGULARITIES.

(Continued from page 581).

A very neat and strong split-plate may be made in the following manner:

Get zinc dies and lead counter of the model, and swage up No. 7 gold or dental alloy plates to cap the molars



(Fig. 4). a Rubber plate.
b Screw tube.
c c Dental Alloy plates.

and bicuspidis where necessary. (See Fig. 4). The plates should overlap the crowns of the teeth about one-eighth of an inch, and before the final swaging, these overlapping edges

may be nicked with a piercing saw or pair of sharp shears, after which they receive the final swage. The plates are now to be cleaned and annealed, and after the overlapping edges are turned outwards slightly, to allow the vulcanite to take a good hold of them, they are ready to adjust to the model.

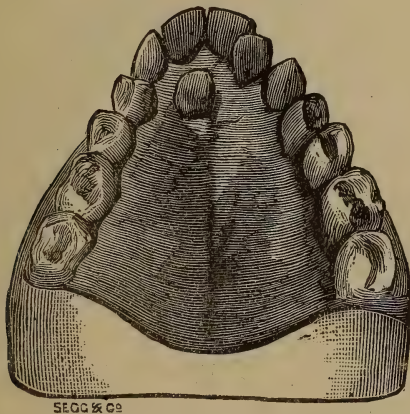
We now take the model, warm it, and paint it with chloro-rubber over every part where the plate has to extend, likewise under the edges of the plates. These latter are now warmed and placed in position. A sheet of rubber is now cut roughly to a pattern made on the zinc model, and having been softened either on a hot plate or over a spirit lamp, it is carefully pressed into the palate, and up to the edges of the plate, other smaller pieces are then adapted to the buccal aspects and pressed around the edges of the plates, and afterwards smoothed by being rubbed with a pledget of wool soaked in chloroform.

We have now to insert the screw and split tubes into the rubber in the palate of the case (Fig. 4, b), to do this it is first necessary to build up pieces of soft rubber the required height, then, after warming the screw to press it into the position required; it should be perfectly straight across the palate. We next take more soft rubber, build it up around, and just to cover the screw, and then finish up the palate with chloroform the same as the sides. When this has been done, one should take a warm knife and make a deep cut in the rubber plate extending from behind the front teeth to the posterior edge of the palate. The plaster running into this cut, enables one when the case is finished to divide it more easily.

The case is now ready to be inserted into the flask for vulcanizing. As all the packing of rubber has been accomplished, it only remains to dip the model into cold water, and then having mixed up a sufficient quantity of plaster of Paris to fill the flask, the case is inserted and the flask is closed.

As a rule the rubber itself may cover over the teeth, and be cut away if found necessary to allow the cusps of the teeth to appear through; this however, weakens it considerably, and the portions of the case in the buccal region are apt to break away. There is no fear of this occurring when a plate is swaged up to cap the teeth.

In the foregoing description the making of an upper case has only been described, the same course may be adopted for the lower, the only difference being that the screw instead of crossing as in the upper, is placed close behind the front teeth, and wings of German silver are soldered to its distal extremities, and extending to the anterior molars, (see



(Fig. 5). Original condition of the Mouth.

Fig. 3), in order to give strength and rigidity to the ends of the rubber plate, and equalize the expanding power of the case. The packing of the rubber on the model, and subsequent finishing off with a warm instrument and chloroform, is the same as in the first mentioned case.

After being vulcanized, and cooled down, it is removed from the flask, then filed up and polished before attempting to saw it in half. When this is done it is ready for the

mouth. As a rule the fit of a case made on this principle is perfect, and the articulation is not materially affected by the plate covering the teeth, there is also no fear of a fracture as occasionally happens, when the vulcanite itself is brought over the teeth.

Figs. 4, 5, 6, will shew the effects of a screw plate such as described, with but a small amount of attention from the dentist, and that only towards the completion of the case when the right lateral was drawn into position, by lacing with rubber dam.

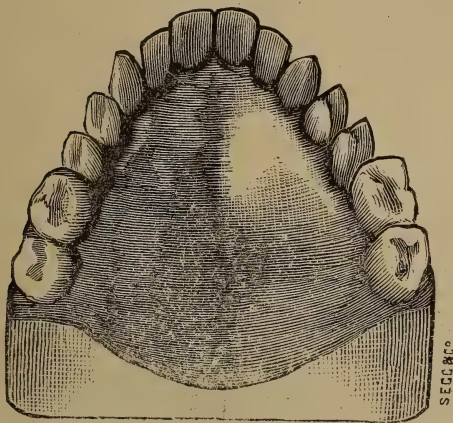


(Fig. 6).

When inserting such a case in the mouth, the patient should be directed to wear the divided plate for a short time before commencing to separate it, after which he may make one turn of the screw every third or fourth day, so as to ensure constant pressure being kept up. He should also be advised to report himself in from three to four weeks' time or longer, according as a small or large amount of expansion is required, and if the patient has been faithful and performed his part of the contract, a great improvement ought to be visible.

When a patient has to come a long distance, this method of treating a contracted arch will be found peculiarly advantageous, at any rate from the patient's point of view.

Another method for expanding the Dental Arch is by means of a split vulcanite plate with a spring in the centre, known as the Coffin plate. This is also most effective and reliable, but certainly requires greater attention on the part of the dentist, as the spring is apt to get broken if meddled with by the patient.



(Fig. 7). Case when completed.

The following method is recommended for making a split vulcanite plate. First dry the plaster model, and cut out a pattern the size of plate required, and while still warm paint the former with a solution of chloro-rubber to the extent of the rubber plate required.

A piece of rubber is now cut out according to the pattern, and is softened on a hot plate and pressed into the deeper portions of the palate, afterwards to the teeth and alveolar ridges. A piece of pianoforte wire is then bent to the required shape (Fig. 8) with suitable round-nosed pliers, and after coating the free ends, which are to be inserted in the

vulcanite, with tin in order to prevent the sulphur from acting on the steel, they are pressed into the soft rubber and secured, the spring being thus close to and on the surface of the plate, which should be covered with a layer of tin foil to prevent the sulphur in the rubber from acting on the wire. Before inserting the spring into the rubber it may be held together with binding wire. It is then flaked and vul-



Fig. 8.

canized as directed for the screw-plate previously described. This plate when filed up and polished, may in some cases be

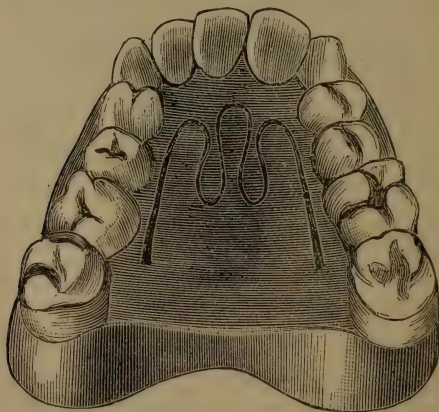


Fig. 9.

worn for a day or two before dividing it, as it enables the patient to get used to the feel of the case in the mouth before any pressure is applied. For tinning the ends of the wire for insertion in the rubber, a little tin or soft solder may be

melted on a piece of brass or copper plate, having a slight indentation hammered in it to prevent the tin flowing about.



Fig. 10.

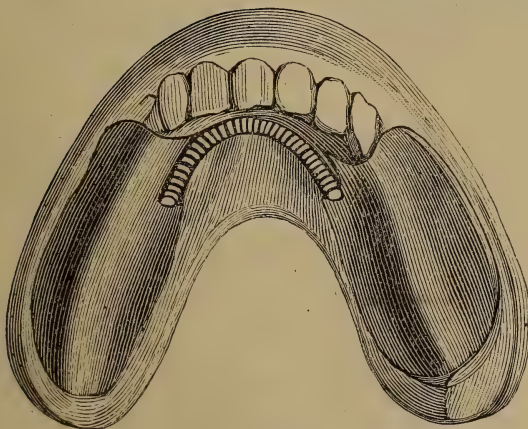


Fig. 11.

The ends of the wire after being flattened should be just touched with zinc chloride and then dipped into the melted tin ; this will coat and protect it. Fig. 9 shows the position

of the Coffin spring in the palate of the case, the flattened ends of course should be covered up in the rubber, and care should be taken that the spring takes the slant of the palate, and that it does not stick out at the back part, to get into the way of the tongue.

Fig. 10 is the model of the lower jaw of a young lady about fifteen, whose molars and second bicuspid slanted into the mouth to such an extent that it was only possible to take the impression in sections. In order to make a case that should admit of easy removal and insertion, to correct the position of the offending teeth, two side-pieces capping the molars and bicuspid were made; these were connected by a pair of spiral springs, (Fig. 11) which were vulcanized into them. Fig. 12 is a view of the device off the model.

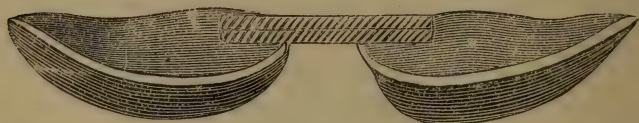


Fig. 12.

Very good results followed the use of this which was worn until the position of the teeth admitted of the use of a screw plate.

(To be continued).

Use zinc sulphate in the treatment of pyorrhœa, after thorough cleansing of pocket and roots. Warm beeswax in warm water and incorporate zinc sulphate to form a paste, with which pack the pockets and leave several days. As the pockets fill in with granulation from the bottom the plug is forced out.

BRITISH TEETH ON THE DOWN GRADE.

By CHAS. FOX, L.D.S.

CAUSE 3.—IMPURE AIR.

(Continued from page 584.)

The study of no single organ or tissue throws more light on the general question of disease origin than researches in connection with the teeth. Open as they are to direct and constant observation, we can better diagnose their immediate condition, speculate on the etiology of their abnormal state, and mark the effect of changed environment, local and general, than in the case of any internal organ. If then it be said that these remarks on the effects of impoverished air might equally apply from a phthisical, dyspeptic or neurotic point of view, we may reply that not only are the teeth directly associated with these other ills that flesh is heir to, but we can more easily demonstrate vicious causes. Just as an Owen or Huxley relies on fossil molars for the reconstruction of some antediluvian monster of forbidding shape, and the science of comparative anatomy steers by a dental compass; so in the evident deterioration of teeth and the contemporary presence of certain features of modern life we can run these causes to earth. Never must we forget in our close attention to a special set of organs, that the body is one complex entity, not a collection of parts co-operating for certain purposes.

It may not have struck everyone that the improvement and cheapening of artificial light is at the bottom of many of our labour troubles. When sunset ruled the length of the working day, for much of the year, an eight hours day was practically realised; but as soon as it paid to use artificial light, there was only the limit of physical endurance or

human acquisitiveness. This toiling in gassy rooms, where the oxygen is being consumed by every burner five times as fast as a pair of lungs can manage, is no slight factor in the question. In not one room in a hundred thousand is there a scientific system of ventilation, and the burnt-out smell and taste of the air as one enters even a large drawing-room where gas or lamps have been lighted for hours, is familiar to all. Take the trouble to examine the mouths of people who have thus been working or resting, in a well-lighted chamber or public hall; and you will find furred tongues, gums and teeth coated with slimy mucus swarming with low forms of life, while the saliva has lost its healthy alkaline tone. In the incandescent electric light is an element of hope, for the air is not robbed of its oxygen by these vacuum globes, but if it tempts people to prolong their confinement in unventilated rooms the evil will remain uncured. Concerned as we are especially in the care of children's teeth it is well to bear in mind that a growing child requires twice as much oxygen as an adult, and is poisoned far more readily by carbonic acid gas. With the blood impoverished and the mouth directly fouled by impure air, no proper dental development can be expected. And yet the old superstition of the bad effects of night air on infants, troubles the careful mother's mind, and windows are fast closed and chimneys bunged up. Pass down a city street in the early morning hours, and note how few bedroom windows are open, and one may make a mental memorandum that in those few houses live intelligent, sane people. The modern house with its well-fitted sashes, its gas burners, and its bedroom upstairs, where the hot foul air has risen from the living rooms below, is distinctly inferior to the wigwam of the savage as a sanitary home for human beings. The North American Indian knew neither consumption nor caries, but there was a thorough current of air from the door to apex of the hut, and no night-light in a shut-up "cosy"

room for their poor little papposes to share the air with.

The committee of a Yorkshire elementary school where 170 children were educated, receiving a complaint from the mistress of the intense cold during the winter, supplemented the insufficient fire warmth by lighting all the gases for two hours before the children assembled. There was absolutely no ventilation at the top of the rooms because these wiseacres had pasted over the outlets to economise the warmth, and the mistress and numbers of the infants were very soon on the sick list.

Another new feature in nineteenth century life, running parallel with this marked deterioration in teeth, is the habit the race has acquired of rushing about the country cooped up in boxes of inexpressibly foul air ; and subjected to continuous vibrations of a very nerve destroying character. Samples of air were taken from a closed railway carriage after ten people had journeyed fifty miles ; from a London doss-house dormitory ; a sweater's den ; Sheffield streets ; and a mountain top. The railway carriage sample was by far the worst, beating the dirty sleeping room where eighty outcasts were festered together, and the tailor's workshop where thirteen pallid wretches stitched for life amid the fumes of a coke furnace. I heard a so-called educated lady the other day, congratulating her friend on finding a full carriage where, " You'll be nice and warm, my dear, and mind and keep the window shut, and close that horrid little ventilator, it will make such a draught, and increase your cold." And then the poor dear wonders why her holiday and change of air have done her no good and worries her doctor and dentist as to the reason for her cold being so stubborn and her teeth working loose and the gums getting so inflamed.

Our great grandfathers travelled but now and then, while we spend a very big slice of our lives on the rail. They

often preferred the outside of a stage ; their descendants seek the warm corner of a stuffy compartment.

Lectures on the most abstruse scientific subjects dealing with the intricacies of obscure diseases are given oftentimes in rooms poisonous with the breath of crowds of students. Political meetings for the reform of social conditions are held in rooms not fit for half the bearers to remain for a fourth the time, and the yawns of worshippers in churches with poisoned air, are due more to want of oxygen than any lack of eloquence on the preacher's part.

If we are honestly to answer the query of our patients, "why are the children's teeth so bad now-a-days," we must include in our answer the undue proportion of time spent by the majority of young people in artificially lighted, unventilated rooms, in closed carriages, insanitary schoolrooms and churches ; and hold forth with all the ability we can on the cleansing properties of abundant fresh air, one of the finest dentifrices ever invented.

REPLACEMENT OF THE LOWER JAW AFTER RESECTION.

At the Surgical Congress at Berlin, Hr. Partsch, Breslau, spoke on this subject. In place of the substitutes provided by the dentist, hitherto made use of and prepared before the operation, the speaker had had a simple one constructed that served the purpose very well. Immediately before the resection he bored two holes in the sound part of the lower jaw. Immediately after removal of the diseased portion, he placed an aluminium bronze arrangement, also provided with corresponding holes, in position. It was then firmly fixed by silver wire passing through both sets of holes. At first he used to suture the mucous membrane of the mouth over the substitute, but had ceased to do so. Healing was not interfered with by the plate over the splint. The definitive substitute was later on placed in by the dentist.

The Medical Press.

British Journal of Dental Science.

LONDON, AUGUST 2, 1897.

GRATIS WORK.

The amount of work that dental practitioners as a rule perform gratuitously is very great, and we think that a few words on this subject may not be out of place. The work of the student is of course, purely of a gratuitous nature. He joins his hospital with the one idea of learning his profession and he performs as many and as varied operations as possible during his curriculum with that end in view. The compact between the hospital patient and the student is a perfectly fair one. The patient pays no money fee, but on the other hand expects that the student—under the supervision of his superiors—will utilize him and his disease in gaining knowledge and manipulative skill. These are the student's rewards which he afterwards uses in gaining his livelihood, and by which he is fitted to minister to the public at large.

But after the educational period has been passed, most of us have a considerable amount of gratuitous work to perform both in connection with charitable institutions and in private practice. The poor are always with us, and it is a good thing, if we are attached to a charity, to be the means of relieving suffering. Our motives may not be wholly un-mixed; we may be glad of the honorarium, the *kudos*, or the experience which such a position confers. But while enjoying the privileges which such a post may bring, we should be careful to perform our duties in a conscientious manner, not only by endeavouring to preserve teeth and by educating the poor in the care of their dental organs, but also by preventing our charities being abused by those who can afford to consult the private practitioner. Unfortunately dental hospitals—in fact all special hospitals—are much abused,

and consequently many practitioners who are content with a modest fee have to suffer. There are two ways in which this evil is to be combated. One, by greater supervision and stringency in the admission of patients, and the other by educating the poor in the care of their teeth, and in making them aware of the importance of these organs. When the public becomes more alive to the necessity of preserving their teeth, they will find means to pay the requisite fee, even at the expense of some luxury or personal adornment. At the same time when a larger number of skilled practitioners are turned out from our dental schools, the high fees now charged for high-class work will become reduced. At present, the lower middle class, that is to say, the great majority of the public, either neglect their teeth and only visit the dentist for extraction, or attend a dental hospital. They could well afford to pay a small fee, but they are afraid that the qualified practitioner will charge them a high fee, and they are also afraid of the tales current concerning the self-belauding advertiser, who publishes a list of his supposed fees.

As regards gratuitous and charitable work in private practice, the medical and dental professions stand alone, and the benevolence and philanthropy performed in a quiet way is incalculable. At the same time it must be remembered that the labourer is worthy of his hire, and that rent and taxes have to be paid. People who receive advice and relief for nothing are often apt to value them at the same price, and it is fair neither to ourselves nor to them. To ourselves, for time and skill have their market price; to [them for it has the effect of pauperising them and sapping their independence. In our opinion a modified fee should be charged or the patient sent to some other reputable practitioner who is satisfied with a smaller fee than that which the first has to demand. With regard to services rendered to members of the medical profession, the general rule is to perform ordinary stopping work and extractions gratuitously, while a modified fee is charged for extended operations and for mechanical work. Medical students and nurses come under the head of

half-fees. If medical practitioners insist on payment for operative work—as many do—a modified fee is accepted.

There is another form of gratis work which we can all do, and which benefits both ourselves and others. We allude to work done for the benefit of the profession and the public in the way of research, original investigation, and of tabulating experiences. None of us who has been in practice for any considerable time, but has come across interesting cases, observed certain phenomena, or arrived at some beneficial mode of treatment. It is our duty not to hide our light under a bushel, but to publish our experiences for the good of our fellows. We might mention the Committee of investigation into the teeth of school children as a case in point. We cannot conclude in a more fitting manner than by quoting the words of Alexis the mediæval physician. “I have determined to communicate and publish to the world all that I have, minding to set forth none but such as are most true and proved.”

DEATHS FROM CHLOROFORM.—The usual number of deaths from this anæsthetic appear in the various medical and lay journals, and fatalities from this cause would almost seem to be looked upon as a matter of course. We publish the copy of a letter by Mr. Bellamy Gardner, who sums up the case very fairly and tersely. Ether and gas are more troublesome to give, therefore chloroform is chosen. One objection urged against the use of ether in warm weather, is its greatly increased volatility, but surely this could be counteracted by some cold-producing agent. No trouble ought to be too great when human life is in the balance.

A SUPPOSED NEW FUNCTION FOR THE BILE.—Professor Fraser of Edinburgh, in his investigations into the venom of serpents, has brought forward the theory that the bile, in addition to being an important excretion, removing waste products from the body, promoting the absorption of fat

and acting as a laxative and antiseptic, has also the additional function of rendering inert many organic poisons introduced into or generated in the alimentary canal. He states that he has introduced serpent's venom into the stomach of an animal, without producing any injury, even when the quantity is so large as to be sufficient to kill 1000 animals of the same species and weight if injected under the skin. This he finds is due to the anti-venomous action of the bile. The bile of the poisonous snakes themselves seems to possess the greatest anti-venomous properties, and by mixing the venom and bile of the same snake, such as for instance, the cobra, rattlesnake or puff adder, and injecting the mixture under the skin of an animal, the action of the poison was neutralised and no ill effect ensued. In fact the bile is such a powerful agent that a quantity less in amount than the venom is often sufficient. The bile of non-venomous animals, such as the ox, is only one seventieth as strong as that of the venomous serpents named.

WOMEN AS VETERINARY SURGEONS.—In 1895 Principal Williams of the New Veterinary College, Edinburgh, admitted a lady student who has since gone through the curriculum which entitles a male student to present himself for the First Professional Examination of the Royal College of Veterinary Surgeons. On applying for leave to present herself, permission was refused, and an action is pending in consequence. The College maintains that the admission of a woman is contrary to long usage and precedent, and that the Act only refers to men. The candidate's position is that the action of the College is illegal, and prejudicial to the interests of the veterinary profession and to itself. It will be interesting to see which party is victorious.

DESTROYING A NERVE WITH A RED-HOT IRON.—A case has lately been decided in which the plaintiff was awarded ten pounds as compensation for the pain and suffering caused by an improper operation. The plaintiff went to a man

calling himself a dentist, who proceeded to destroy the nerve of a tooth by means of a red-hot iron. Evidently the plaintiff thought that the remedy was much worse than the disease, and brought the action which was decided as above. We consider the compensation none too great. It is curious to find that this barbarous method still exists, especially as the property of arsenic for pulp extirpation was known a couple of hundred years ago.

THE VALUE OF A TOOTH.—Don Quixote remarked to his squire Sancho Panza, after one of his memorable adventures, in which he lost several teeth, that he had as soon have lost his arm as his teeth. The present-day value of a tooth would seem to be ten pounds, as that was the amount of compensation lately granted to a plaintiff for the extraction of a wrong tooth. Teeth were not so easily replaced, and vulcanite was unknown, in Cervantes' time. Now a-days the comparison between the loss of teeth and that of an arm would be absurd. We are afraid that the advent of anæsthetics and vulcanite have led to the extraction of many teeth which ought to have been saved.

EDINBURGH DENTAL STUDENTS' SOCIETY.—A number of interesting clinics held under the auspices of this Society, took place on the evening of Monday, June 28th. The demonstrators were either dental surgeons, or assistant dental surgeons in the Hospital, and the students in the largeness of their attendance, showed a marked appreciation of the educational value of such a gathering. Mr. G. W. Watson demonstrated extractions with the combination of Nitrous Oxide and Oxygen and with Ethyl Chloride. Mr. J. Graham Munro filled a cavity with gold by the use of Dall's mallet. Mr. J. S. Amore showed a very practical method of making a crown, whilst Mr. J. A. Young, beyond an alarming toxic effect from cocaine injection, successfully demonstrated the use of cocaine and eucaine in tooth extraction.

THE DENTIST AND THE DEATH CERTIFICATE.—At an inquest held at Redruth recently, the following certificate was handed in:—"This is to certify, that Mary Martin, aged 72 last birthday, died on the 2nd instant, from paralysis of the brain (third attack); duration of disease, six months S. T. ROWE, Ph.D. and C., Registered Surgeon Dentist and Chemist." The certificate was naturally refused by the registrar. On giving his evidence Mr. Rowe stated that he had given certificates for fifty years, and that such certificates had never been questioned until recently, and that in consequence of the action of the registrar "he had arranged to get a properly qualified man as his assistant." This, of course, would render the qualified man liable to be charged before the General Medical Council for acting as "cover" to an unqualified practitioner. It appears that Rowe has been treating all kinds of cases, infectious and otherwise, and not reporting infectious cases to the Medical Officer of Health, and has been a source of the greatest danger to the community. That a man can escape after such a course of defiance of the law is a scandal, and only goes to prove that the Medical Acts cry loudly for amendment.

A COLOURED LADY DOCTOR.—The Louisiana State Board of Medical Examiners has granted a diploma to practise medicine to Mrs. Emma Wakefield, a lady of colour. She is said to be the first woman of her race in the South, or indeed in the Union, to receive this privilege. Mrs. Wakefield is the daughter of ex-Senator Wakefield, and a graduate of the Medical Department of the New Orleans Coloured University. We presume that this lady doctor will practise exclusively amongst those of her own race, as the objection among the white folk in the United States to being brought in close contact with their coloured fellow citizen is very great.

Abstracts of British & Foreign Journals.

THE LINGUAL WALL.

By Dr. E. P. BEADLE.

While dentistry is constantly widening its field, many things taxing our skill which heretofore have not been considered within our province, it is nevertheless true that the thing we do most, day in and day out, is the operation for preventing caries; the checking of that destructive disease which so soon destroys the organs of mastication.

If any class of teeth is more important than another, that class consists of the four upper front incisors and the two cuspids. Hence, we exert our utmost skill to save not only the structure of these teeth, but their good appearance. I do not mean to be dogmatic in this; but will say that the method I have been pursuing for ten years has proven, in my hands, satisfactory in every way. The work is done with ease to myself and with comfort to my patients. It may be told in a word: the lingual wall is almost invariably removed. The method is so simple and the results are so good, I feel that surely every man here must do the same thing; and but for the fact that many cases have come to my notice, from the hands of good operators where this had not been done, I would not refer to the subject.

This wall is generally thin and weak; the gold cannot successfully be packed against it; it is liable to crack or break subsequently. It is well known that it is difficult to prevent a leak where the gold comes in contact with an enamel-wall. Another important reason for its removal is that you do not need nearly so much separation, as with this wall away the entire cavity is exposed to view by the use of the mirror. To my mind there is no good argument for ever leaving this wall, except under the most favourable circumstances, and in these cases I usually make a compound filling of gold and cement. The cavity is well shaped, with parallel walls, or undercuts if you wish, for the cement (seldom for gold alone). The cement is placed in somewhat soft, and small pieces of annealed gold are pressed in, as many as possible; then the cement is allowed to harden, when the gold

may be continued. This is an excellent plan when the labial enamel-wall is very thin and you wish to prevent the gold showing through.

By the use of the mirror and with a cavity prepared as described, each piece of gold may be carried to its place with perfect precision, and carefully and certainly packed against all the walls; the cervical of course receiving attention first—well covered and well burnished before proceeding further. Where the chances are at all favourable I do not know that I have had a failure in a filling of this kind in years. In fact, I believe it is impossible for me to improve further on my own work in this respect, though of course every good dentist endeavours to do this with every operation. I use hand-pressure almost exclusively in these cases. I see no room nor need of mechanical mallets to annoy patients, while they may sleep, if they like, under the gentle but strong pressure of the hand. Every man is wedded to his method; this is mine, and I believe in it. If, perchance, there is one who would like to try this, I feel sure he will not regret it.

Nearly every man has his hobby. This is mine. I find that in this way I operate without any difficulty, and there is much comfort to me in it. I never get tired. To those who are not wedded to any special method I say try this. Cut away the lingual wall; use the mouth-mirror. Try my method; you will not regret it.

Welch's Monthly.

THE DENSITY OF THE TEETH AND ITS RELATION TO CARIES.

By C. N. JOHNSON, L.D.S., D.D.S., Chicago, Ill.

In the May, 1895, issue of the *Dental Cosmos*, Dr. G. V. Black began the publication of a series of articles entitled "An Investigation of the Physical Characters of the Human Teeth in Relation to their Diseases, and to Practical Dental Operations, together with the Physical Characters of Filling Materials."

This was the first really systematic and scientific effort made to determine the varying density in the teeth of different individuals or of different teeth in the same individual. Previous to this it seemed to be the generally accepted

opinion of the profession that this variation was pronounced, and in many instances very great. The expressions, "hard teeth," "soft teeth," "dense teeth," "chalky teeth," etc., were frequently found in the literature of the profession, and this was supposed to refer to teeth having a greater or lesser percentage of lime salts. The density of the teeth was also believed to have a marked influence upon the liability of teeth to decay, and it was largely taken into account by many operators in the selection of a filling material.

Dr. Black finally became dissatisfied with our lack of exact knowledge of the subject, and instituted a series of painstaking and elaborate experiments to determine the true density and relative strength of the different teeth. In following out this most exhaustive work he spared nothing in the way of time, labour or expense to arrive at definite and conclusive results. It gives me pleasure at this time to testify to his unceasing attention to the minutiae in every phase of the work. It was my good fortune to visit him in his laboratory during the progress of the experiments, and to witness the process to which he subjected every specimen in his records. That visit impressed me with the conviction that I had never till then witnessed true scientific investigation, and made me morally certain that so far as human agency could insure infallible results, the issue of Dr. Black's findings must be final.

This series of experiments proved conclusively that the generally accepted idea of the profession in this matter was at variance with the facts. Dr. Black found that at most there is very little difference in the percentage of lime salts in the teeth of different individuals. In fact, to use his own words, "There is a difference between the individual teeth of the same person that is much greater than the difference in averages of the teeth of different persons."

It has seemed to be very difficult for the profession to follow Dr. Black's investigations, or to see the significance of what he has demonstrated. Probably only a very small percentage of the profession are in the habit of reading papers of this nature, and even among those who do, it is asking much to expect them to at once renounce their preconceived notions, and fall in with a wholly different point of view. More especially is this true if their original ideas have been formed from an extended clinical observation. Men are inclined to cling tenaciously to what they believe their experience has taught them, even when confronted with facts

which prove their ideas to be faulty. In this, as in many other things, clinical observation is not altogether reliable; and yet the profession goes on basing its opinion largely on what it thinks it sees.

In any event we still find in our periodicals frequent references to "hard teeth," "frail teeth," "soft teeth," etc., relating to the supposed varying degrees of density, and we also see certain kinds of filling material advocated for certain kinds of teeth. In the light of Dr. Black's investigations, such references are misleading, and such reasoning erroneous. There is very little difference in the structure of human teeth, so far at least as the percentage of lime salts is concerned, and there are no teeth of so poor a structural quality that they are unsuited for the reception of any of our hardest filling materials. Other things may materially influence our selection of a filling material, but the structure of the teeth has little to do with the question.

In this connection it may be well to consider a point that has seemed to lead to some confusion of understanding. The question arises as to what is really meant by the average practitioner when he says "hard teeth," or "soft teeth." Dr. Black once asked me what kind of an answer I should expect to get from members of the profession generally if asked what meaning they intended to convey by these terms. I said, "I should expect them to answer that by 'hard teeth' they meant teeth that offered great resistance to cutting instruments, teeth that were difficult to break down with a chisel or pierce with a bur or drill." Said he, "You are mistaken. I have asked many of them and they almost invariably answer that by 'hard teeth' they mean teeth that do not decay readily, and by 'soft teeth' they mean teeth that are easily attacked by caries and break down rapidly under its influence."

It would seem to the observant operator that at best this form of argument was reasoning from effect to cause instead of from cause to effect, and if this be the real opinion of the profession at large it is proof positive that they have not carefully considered the question. It has certainly been demonstrated beyond the shadow of a doubt that the density of a tooth has little to do with its liability to decay. That all teeth are not alike in structure, so far at least as certain phases of their physical character is concerned, must be admitted, but that this difference relates to any great variation in the percentage of lime salts or that it has anything to

do with the carious process has been sufficiently disproved.

One fact has seemed to mislead many operators and cause them to look with doubt upon Dr. Black's conclusions. His first series of articles went to prove that the teeth were quite uniform in their density, that there was little variation in the percentage of lime salts, and that the expressions "soft teeth," etc., were misleading. Men read these statements and then proceeded to note as best they could in the mouth the physical character of the teeth to the end that they might verify or disprove what Dr. Black had written. The thing that struck many of them immediately was the appreciable difference in teeth in their power to resist cutting instruments. That this difference does exist seems scarcely to be doubted; it has been noted by too many operators who are not careless in their observations. This fact confused many of them and led them to assume that there was some discrepancy between Dr. Black's findings and the actual facts.

When this question was brought to his notice Dr. Black hastened to state in a paper read before the New York Odontological Society, and published in the April, 1896, issue of the *Dental Cosmos*, that his investigations had not included this phase of the subject. He says: "Since the publication of my papers, I have been so frequently asked about differences in the hardness of the teeth to cutting instruments that I wish to say emphatically that there was no intention of saying anything whatever on that point in what I have written. Whenever hardness or softness of the teeth is mentioned, it has been with reference to the prevailing expression of hardness or softness as expressing the idea of more or less perfect calcification, or with reference to the ability of the dentine to withstand heavy pressure without crushing. It has not had reference to the behaviour of the teeth before cutting instruments. I did try to investigate that point and tried a number of plans. None of them gave results that were satisfactory, or that I thought valuable. I will say here, however, that experimentally out of the mouth I was unable to find any marked difference between teeth classed as soft and teeth classed as hard, and the impression upon my mind is that much of the difference in the hardness of the teeth as found in operating in the mouth is a matter of position, direction of cutting, and opportunity. Still, however, I am finding in practice that which appears to be very considerable differences in the hardness of teeth to cutting instruments. I am persuaded that in many cases men have

mistaken for normal dentine, dentine softened by partial solution of the lime salts."

In discussing this question subsequently with Dr. Black your essayist asked him upon what grounds he based his opinion that the apparent differences in resistance to cutting instruments was due to lack of opportunity. He replied that in his experience he had found that the angle at which the instrument was held influenced largely the ease or difficulty with which the tooth tissue responded to it. For instance, in placing a chisel against a wall of enamel to break it down, it sometimes occurred that several hard blows of the mallet would be struck without apparently affecting the tooth tissue in the least, but that the moment the angle of the chisel was slightly changed the enamel gave way under it with little pressure.

This fact has, of course, been frequently noted by all observant operators, and yet it does not seem to account for the many variations we find in resistance to cutting instruments. It relates more particularly to the line of cleavage of enamel, and has principally to do with the direction of the enamel rods. But in the actual drilling into sound tooth tissues in the extension of cavities or opening out of fissures, there is a marked and a very emphatic variation in the degree of resistability manifested by the different teeth. Given two teeth standing in precisely the same angle in the mouth, with equal facilities for approach, and the operator armed with drilling instruments of uniform keenness, one will be found to present a flintlike hardness that blunts the drills or burs discouragingly with little penetration into the tooth tissue, while the other will admit the drill with slight exertion and grind up almost like a piece of chalk. The recognition of this clearly demonstrated fact in Dr. Black's original series of articles, together with the explanation that it had no bearing on the question at issue, would have done much to disarm possible skepticism on the part of many observant operators.

But the main point of emphasis in the present paper relates to the supposed connection between the density of the teeth and the process of caries. That there is little or no relation between these two conditions seems demonstrated conclusively and the sooner the profession awakens to a realization of this fact the better it will be for our patients. Thousands of useful teeth have in the past been consigned to the forceps on account of this fallacy, and thousands more will be unless the fallacy be recognised. Until the rank and file of the profes-

sion understand that decay of the teeth is a disease influenced by external conditions rather than by the inherent structure of the teeth they are not in a position to intelligently combat the trouble.

Let us assume a case for the purpose of illustrating the different lines of procedure in accordance with the different theories. One operator has presented to him a mouth in which decay of the teeth seems to be progressing rapidly. He believes from preconceived notions that the structure of the teeth is poor and that it is well nigh useless to try to save them. He patches them up in a half-hearted sort of way and tells the patient that the teeth are soft and not likely to last long at best, and the patient feeling that the fight is all one way fails to take proper care of them. The result is that new cavities are formed and recurrences of decay take place around the fillings. The operator attributes the failure of his work to the defective structure of the teeth, and the patient yields up the issue and has the teeth extracted. This is the issue of many a case.

Another operator, recognizing the true significance of caries, takes his patient vigorously in hand, and proceeds on the theory that if the conditions surrounding the teeth can be controlled, the teeth themselves are of good enough structure to be saved. He impresses the patient with the importance of painstaking care of the teeth to the end that deleterious agents affecting them may be eradicated from the mouth. He lays great stress on cleanliness. Then he proceeds to his operations with great thoroughness, believing that he has in the teeth a sufficient structural foundation for permanent work, provided he can wall out the active agent of decay. He counsels his patient to apply frequently for examination of the teeth so that he may detect evidence of the disease in its early stages. In the very worst cases he keeps up a vigorous fight with the hope that the conditions in the mouth may change and modify the tendency to decay. And in many cases this very thing happens. We have all observed cases where the teeth have been decaying in a most discouraging manner for years despite our best efforts to combat the disease, when suddenly the mouth seems to become immune from caries and we are successful in ultimately saving the teeth. This immunity relates not to any structural change in the tooth tissue, but to a change in the conditions surrounding the teeth which renders the propagation or development of the micro-organism of caries less favourable. We are

never able to predict when such a change may occur, but the fact that it does occur should encourage us to make a supreme effort to save a patient's teeth even in the face of discouraging symptoms.

It would seem patent, in view of the foregoing, that if we are to accomplish anything permanent in this direction, we must so change the conditions of the mouth that the micro-organism of dental decay cannot exist therein. To attempt this may seem Utopian, and we are not unmindful of the difficulty of the problem, but we are convinced that this is the only certain way out of the dilemma.

"When we speak of changing the conditions we refer to something deeper and more subtle than a mere chemical reaction. There are agencies at work affecting the life forces of the human economy, the nature of which we to-day know comparatively little. We may recognize an idiosyncrasy, but we are not capable of defining the causes which lead up to it. For instance there are individuals in whose mouths caries is seldom or never seen, while there are others with teeth as well developed, and where even greater care is taken who lose their teeth bit by bit despite the most persistent effort to save them. The logical conclusion seems to be that in the one case there is a subtle condition present in the mouth which militates against the active agency of the micro-organism, while in the other the conditions are favourable to its development.

"At the present time we are wholly unable to distinguish between these two conditions—we can see only the results. But the time may come—and we trust it will—when we are able to recognize these conditions and treat the patient accordingly. The idea of vaccination for the prevention of dental caries would offer a most delightful topic for the newspaper humorist of to-day, and yet who knows what the future may develop? One thing seems certain—we must learn more than we now know regarding the conditions that are favourable or otherwise to the propagation of the micro-organism of caries, and we must also learn how to modify these conditions before we can hope to successfully prevent decay of the teeth."

Dental Review.

CATAPHORESIS.

By Dr. F. T. VAN WOERT.

Notwithstanding what Professor Flagg has said, the day has arrived when every dentist should have a cataphoric machine in his office. But in a year from now I believe that those who have them will use them less often for anæsthetizing sensitive dentine than they do to-day, because of the consumption of time in many necessary cases. It has been used much where it was not needed. I have had patients tell me, "did not feel pain, but I would rather endure a little pain and save time." Dr. Flagg said that it requires forty-five minutes to get satisfactory results. That is a mistake. I have had cases that took forty-five minutes; and one case, and only one, where I was not successful, that took one hour and a quarter, the tooth being as sensitive after I took the electrodes away as it had been before, and the patient suffering all through the operation, although I did my best to relieve her by reducing the current to a minimum. But I believe that properly utilized cataphoresis has come to stay. If used for no other purpose than the treatment of inflammation of the peridental membrane, an instrument is worth the money paid for it. The time required in treating the tooth is not half that which is used in preparing a cavity without it. However, I believe it can be so arranged that there is no waste of time. Place the patient in an ordinary chair, make an application of the current with a suitable electrode, give a current of say, one-fifth of a milliampere, which can be done without pain, and you can go away feeling sure that if satisfactory results are to be had at all, you can get it with this amount of current. That is my experience. I find that a high tension current, and, by that I mean a current that is sufficient to cause intense pain—three, five or ten volts—might cause as much pain to one patient as fifty volts to another; but if it is severe enough to cause pain it is not the current for cataphoric medication. In my latter operations my practice has been to turn on the current until the patient feels it, and then reduce it until it was not felt. As soon as I get a reading high enough I leave it until it is time to renew the cotton. I would not hesitate to leave a child in one chair for an hour, if necessary

while I was operating on someone else, provided I had only what could be tolerated without suffering.

I will give you a little of the history of cataphoresis. In 1892 Dr. Westlake read a paper in which he announced the principles of cataphoresis in dentistry; it was a new thing then, something which Mr. Wheeler worked on with him at the time, and they were both just at the beginning. Since then it has been perfected. Dr. Gillette read a paper a year ago, and it is to him that the dental profession is indebted for the fact that cataphoresis has come into practical use in our profession. It is not with the purpose of reflecting at all upon Dr. Gillette, or any of the more recent workers in this line, that I proceed with this history, but only that I want you to know that cataphoresis was practised a great many years ago.

Cataphoric phenomena were studied with indifference and indefinite results by various investigators in the latter part of the last, and early part of the present, century.

The first demonstration of definite results was announced in 1858, when B. W. Richardson tried successfully morphine cataphoresis for local anæsthesia, using a five per cent. solution. He next tried the following:

R.	Tr. aconite radices	...	10.0 gr.
	Chloroform	... ..	10.0 gr.
	Ext. aconite	... ..	1.0 gr.

for eleven minutes (strength of current not given) on a dog whose leg he amputated, apparently painlessly. Richardson called this voltaic narcosis, and demonstrated its successful application in the human subject, using it for the relief of neuralgic affections, and in cases of minor surgical operations.

The most successful utilization of the method was for the extraction of teeth, using the above formula for ten minutes.

Thus we find, in 1858, teeth were extracted by means of cataphoresis.

The explanation of the anæsthetic results following the application of medicaments by means of the electric current, was, however, not received without incredulity, and it was claimed that the anæsthesia might be produced without cataphoric influence, some going so far as to deny cataphoric action absolutely.

It remained for Quinicke, in 1863, to prove definitely and scientifically the influence of cataphoresis in promoting the

transfusion of fluids by capillary glass tubes provided with a porous diaphragm.

In 1865 W. Kuhne demonstrated the effect of cataphoresis upon living muscle, showing a current produced in the fluid of the tissue, in a direction from one pole to the other, resulting in a distinct thickening of the muscle fibre, towards which the fluids accumulate. Bianci, Brigoli, Palma, Verati, Winkler and others corroborated the above, and by their experiments proved the cataphoric influence of medicine upon tissue.

From 1870 to 1873 Becquerel, Davey, Fabre, Paleprat, Guardana, d'Haehn, Hassenstin, Mangini, Priestly, Sigand de la Fond and others made use of galvanic, farradic and combined currents with equally successful results. Beer, in Vienna, tried iodine solution with only indifferent results, while V. Bruns used a saturated solution of the iodide of potassium, producing salivary reaction, to starch in twenty-five minutes. Munk corroborated this, and also succeeded with solutions of quinine and strychnine, clinching his results by producing toxic strychnine symptoms in rabbits by injection of saliva and urine from cataphorized subjects.

J. V. Wagner, of Vienna, elaborated the apparatus and method, and used four per cent. alcoholic solutions of cocaine for five minutes with six milliamperes.

Fifteen to twenty per cent. solutions with same current required only two and a half minutes, while the same solution with half the strength of current, required five minutes. He also proved that the same solution, without current, applied to the skin produced no noticeable effect. The same current without the solution was equally inert.

Halbies cocainized the membrane tympanius, by means of the cataphoric influence successfully.

J. L. Corning, of New York, proved the anæsthetic action of cocaine upon the cutaneous surface by means of cataphoresis, Adamkiewicz used chloroform by means of a specially constructed electrode, and though he claimed success this was not corroborated by subsequent observers or by my own experiments.

Chloroform used in this way invariably produces a slough, (chloroform having a resistance of two billion ohms.)

Doctors Peterson and Booth, of New York, under the direction of Professor E. C. Seguin, conducted a series of experiments, proving the possibility of penetrating the skin and anæsthetizing superficially situated nerves by cataphoric

cocainization. They used Wagner's electrode, an average current of seven milliamperes per ten minutes and a cocaine solution of twenty per cent. strength. The anæsthesia, with consequent result to persistent neuralgia, lasted, in different cases, from five to eleven hours.

My own work corroborates all the above mentioned effects. I have noted, also, that increased strength current (*i.e.* to the point of tolerance), with the same solution, produces the same effect as diminished current applied for longer periods.

Southern Dental Journal.

PILLS.

The advance in pharmacy which has taken place during the Queen's reign is very remarkable and very creditable to everybody concerned. At the commencement of the reign people seem rather to have preferred that their draught should be nauseous. "Elegant pharmacy" was hardly dreamed of. The first great advance was the preparation of active extracts in place of decoctions and infusions which were not only nauseous but uncertain. The object of Squire and his immediate successors was to obtain the active principle of the drug in a small compass and in a thoroughly active state. This was a move in the right direction, and the services rendered by pharmacy to medicine in this way can hardly be exaggerated. At the same time it must be recognised that in elegant pharmacy, as in everything else, discretion must be mingled with zeal, and that we must not sacrifice essentials for externals. The means taken to render the dose agreeable to look at, and not disagreeable to take, must not be such as to prevent the drug from acting. A case in point was mentioned to the Royal Medical and Chirurgical Society not long ago. A lady had been swallowing a certain drug without the expected benefit, and it turned out that the compressed pellets had been passed undissolved. A druggist in Brooklyn has recently been enlivening the pages of a pharmaceutical contemporary by an account of his experiences with coated pills. Accident led him to the observation that it was easy, by putting certain gelatine-coated pills between two deal boards, to imbed the pill in both by hammering upon the outer surface of one of them. He publishes a photograph rather like a gunmaker's target showing rows

of pills sticking for half their thickness into the lid of a packing case. The experiment led him to make certain obvious reflexions on the fate of such pills in the human stomach and intestine. Two things may and do happen ; one is that the pill is never dissolved at all, and is expelled as any other foreign body would be expelled, having produced no therapeutic result whatever ; the other is that the pill is very slowly dissolved, and instead of producing the desired result at the desired time, produces its result later, perhaps at some very undesirable time. The moral is most certainly not that we should go back to the barbaric pharmaceutical methods of early Victorian days, but that the manufacturers of compressed drugs and coated pills should bear in mind this possible disadvantage in their products. The evil can easily be prevented, and there are many manufacturing chemists who are fully alive to the point on which we are now dwelling. In ordering pills and compressed drugs the matter should be kept in mind, and the solubility of various samples tested, for the patient may suffer, and very undeserved discredit may fall upon the practitioner if this precaution be neglected.

British Medical Journal.

CONTAGIOUSNESS OF CANCER.

Leon Noël has collected together (*Thèse de Paris*, 1897) a large amount of information on this subject, more particularly in support of the idea that the origin of cancer should be sought for in some widely spread condition affecting very various organisms both animal and vegetable. This idea, originated by Fiessinger, is based first of all upon the fact that cancer seems to be most frequent in isolated houses on the banks of rivers, especially if close to woods. It has also been observed that trees under these same conditions are affected with veritable tumours which present a curious resemblance to cancer. Among other facts cited by Noël is one which goes to show a certain relation between arboreal "cancer" and that of man : that is not only the frequency of malignant tumours in habitations surrounded by or near woods, but also a considerable mortality from cancer among certain persons whose occupation obliges them to live in these conditions ; thus Excise officers who in certain parts of the country pass a considerable portion of their time in

isolated paths through woods have frequently been observed to suffer from cancer. The statistics of Julliard, Bierry, and Fiessinger all contain considerable numbers of Excise men, and it is now a known fact that country labourers are very predisposed to cancer, and traumatism, scratches from brushes, etc., have been thought to have considerable bearing on the etiology of cancer. Cancer of the lip is said not to exist at Lyons, and all those who go into hospital there to be operated on for growth in that situation come from the fields. The malignant vegetable tumour is found in woods and orchards. This tumour appears to be contagious, a good number of them being often found in the same neighbourhood. Insects, as shown experimentally by Morau, more particularly the large wasps found in woods, seem to have a certain predilection for arboreal "cancer." Not only do they carry infective material from one tree to another, but they also disseminate it into human food. Ruffer's observation is quoted that large numbers of protozoa live on insects in the form of saprophytes, and it is quite easy to understand how insects could carry any infective material, and the question is asked, Is it possible for a human being to develop cancer as the result of such infection? It is also easy to understand how water, especially in the neighbourhood of woods, could act as the medium of transport. In point of fact Fiessinger speaks of two different methods in which cancer may be propagated—from food and by the fingers. In the one case cancer of the alimentary tract will result; in the other any external portion of the body may be affected. Although these questions are merely hypothetical, they merit further observation.

British Medical Journal.

METAL DIES DIRECT FROM IMPRESSION.

Dr. E. I. Woodbury, *Dental Cosmos*, has a method of making dies in metal direct from the impression. The material for the impression is fine clay or a clay compound, with an equal part of plaster which is the aluminous compound he uses. It will not shrink or expand, and is also a good investment for soldering. He uses a perforated tray, made in parts composed of an alloy of two per cent. copper with

aluminum. This will stand the heat of the temperature at which the metal is poured. It is perforated for drying and permitting the escape of steam. Any die metal may be used, but the Doctor prefers Pastel's Babbit metal. The metal is poured in a semi-plastic condition and tamped in the mould to avoid the spheroiding involved in the old procedure, when the metal had to be poured very hot. The nearer we come to the mouth the better will be the result. In the old process of sand moulding there were several transfers, and each step involved changes and defects. In this process there are but two changes—the impression, and the pouring and pressing down of the molten metal. Lead and tin are used for the counter die. The flasks are made in three parts. The impression is held in the lower part, filling in around it with the investment compound. The middle part of the flask is made to hold the metal. The impression is trimmed to relieve pressure in the proper places, as the metal model cannot be trimmed afterward. After drying and heating the investment portion, the Babbit metal is melted to mere fluidity, then stirred to make it plastic, poured into the impression and tamped down well to make it fill all portions well, and prevent spheroiding. It is cooled in water. Dry it well and smoke to prevent adhesion, and pour the counter die metal. There are four special advantages: (1) The short time required to make a die; (2) The low temperature at which the metal can be poured; (3) All irregularities can be taken sharply; (4) The ease of the process by which even a novice can get good results at once.

Dominion Dental Journal.

THE TOOTH-BRUSH.

By E. C. MOORE, D.D.S.

It has been said that "the pen is mightier than the sword," so I will say that the tooth-brush is mightier than the excavator and plugger. Now, while I verily believe this, I am at a loss for language to sufficiently and forcibly impress my readers with the importance of the proper tooth-brush, properly used. "Ah, there's the rub;" proper brush, properly used. The proper brush is the one which will, by

its shape, reach as nearly as possible all parts of the mouth and all parts of the teeth in the mouth. By its shape, I mean the shape of the handle or that part into which the bristles are set, the arrangement of the bristles themselves and the strength or stiffness of the bristles. The handle part should be a little curved in shape, the bristles being on the inner side of the curve and set in tufts, not close together, and because of this fact they should be very stiff, the writer preferring the unbleached bristle when he can get it. All bristles grow less stiff after being put into commission, and this is the very reason they should be stiff to start with. This and the fact of not being set closely together is another very good reason for not setting the bristles compactly in the brush. The fact of such a brush becoming very filthy, anyone may convince himself of by taking one of these brushes after it has done duty a few months; by parting the bristles and looking closely into it, it is just like parting the hair on a dog's back in flea time. You don't see the fleas quite so plainly, but they are there just the same, armies and myriads of them. With open brush this condition does not exist, because the construction of it allows of thorough washing and a thorough circulation of air, and consequently a thorough drying of the brush and return of a rigidity of the individual bristle and series of bristles. The curved shape of the handle is for the purpose of bringing the brush end more easily under control of the hand while using. At the extreme end of the brush a larger and longer bunch or tuft of bristles should be placed, enabling the user to reach more effectually the palatal and lingual portions and surfaces of the teeth, as well as the posterior aspect of the molars. So much for the shape of the brush.

The brush, like many other good things, is deserving of care, and it should always be thoroughly washed in running water if possible—the water forced out by drawing the thumb over the bristles, and after that dried upon a towel. Three of these brushes should be in use, as it were, at a time, and consecutively, thus allowing in the interim sufficient time to dry the bristles, making them more effective in their turn for use.

Thus far the easiest part of my task is performed, that of describing a good and effective form of tooth brush and in speaking of its importance; but to impress those who may chance to read these lines, I hardly know how to choose words and frame sentences of sufficient force to make them

understand my sincerity and the importance of the tooth brush when thoroughly used. All the dentists of the world fall into insignificance when compared with the tooth-brush when used as it should be. Now, this may seem to be putting it pretty strongly, but I hope, dear reader, you will not consider this a mere figure of speech, but I honestly believe this. I often preach this short, but I hope effective, sermon to my patient after having finished everything I can find to do in the mouth in the way of filling or otherwise restoring the mouth to normality; "Now I have done everything I can for you—that is, I have done my whole duty—and it lies in your power to do more for the preservation of your teeth than I or any other dentist in the world can do." This naturally leads to the inquiry, "How do you mean?" This gives me the opportunity to tell about the brush, the kind, and all that; and lastly, but not least, how to use it, without openly accusing them or insinuating that they don't keep teeth clean, all of which one might do and adhere strictly to the truth. But this will not do. Better to lie under some circumstances than speak the truth. Get at it in some other way. The subject being opened, read the sermon on the tooth-brush; read it loud and strong. Tell them and prove to them in language as strong as you can command that you will save them money and suffering if they will practise that which you preach to them. It is not an uncommon remark for patients to make that they don't see why their teeth decay when they brush them three or four times every day, and at the same time they say it one might give a very close guess what their last meal consisted of from the fragments about the molar teeth.

The brush to be effective should be used in every direction, and particularly while holding the brush the movement should be in a horizontal manner to brush down upon the upper teeth and up upon the lower teeth, allowing the stiff and scattering bristles to go between the teeth to remove every particle of food finding lodgment there. And your subscriber should not be afraid to brush the gums at the same time, even if they should bleed; the more blood the more I would recommend brushing, thus relieving congestion by depletion.

The Odontoblast.

HYGIENE.

By T. E. POWELL, D.D.S., Chicago, Ill.

Let the first consideration always be that of good ventilation. Be sure that there is plenty of fresh air in the room all of the time. There should be no direct currents or draughts. The windows ought to be so adjusted that the air may enter and circulate without disturbing any light substance in the room.

In order to accomplish this the windows must be opened from the bottom and a guard placed in front of the open space, so as to direct the air toward the upper part of the room.

Even in the coldest weather this may be done without any discomfort, provided the room be properly heated, and the heat should always be regulated with a view to proper ventilation.

A thermometer is indispensable if perfect ventilation and a normal temperature are desired. Nothing has a more depressing effect or causes such a marked irritation of the nervous system than an overheated, poorly-ventilated room.

In reference to work at the chair, one should try to keep an erect position. If anyone must assume an unnatural position, let it be the patient.

Manipulate the chair instead of the spinal column. Learn to work with the glass instead of crouching as if about to spring upon your prey. Avoid the patient's breath if possible. The adjustment of the rubber dam mitigates this evil. Do not hurry; do not worry; but do your work calmly and deliberately. Allow your patient's excitability to increase your imperturbability. Nothing will deepen the furrows in one's face or bring on physical wreck more quickly than fretting or worrying. Do not give appointments for trying operations during the later hours of the day, when you are all tired out, but try to arrange to have the easiest work come during the last two hours.

Use an antiseptic solution on your hands after washing them, as it is not safe to depend on soap and water. It has been thoroughly demonstrated that soap and water will not remove disease germs from the hands, however carefully you may wash them. How frequently operators may be seen using their teeth as a receptacle for instruments while

operating. Such instruments, for instance as the mouth mirror, gold pluggers, foil carriers, etc.

The danger of this practice is apparent. We are too careless.

Carelessness frequently costs a man his life. Let us watch these points:

I want to speak of some things we should do outside of this office.

Some do observe religiously many of the points mentioned above, but make no effort whatever to keep the body in perfect health by using, outside of the office, some of the numerous means by which the health may be maintained.

There is such a diversity of ways by which we may gain the necessary amount of recreation, that it is useless for me to particularize. My aim is to emphasize the necessity for this recreation, rather than the manner in which it is obtained.

Every animal requires a certain amount of sunshine and fresh air, and man is no exception to the general rule. There is no reasonable excuse for the neglect of this side of one's nature, when anyone can have for a mere pittance a tram ride, or a walk in the park free gratis. If neither of these suits, there is horseback, carriage or bicycle riding, ball, tennis or croquet playing. These, and the many additional diversions which the ingenuity of man has furnished, would seem to provide means by which an earnest seeker for health may be gratified.

Dominion Dental Journal.

CAPPING NERVES.

By Dr. R. B. ADAIR, Atlanta, Ga.

Since our last meeting I have continued my method of capping nerves with still greater success. I am now so successful with it that I do not kill nerves at all except where it is necessary in the construction of crowns and bridges.

I have had but one failure since my last report. The operation is so simple and easy to perform that any dentist who can insert an amalgam filling can do it successfully, thereby saving pain, trouble and expense to the patient, and

annulling the risk of depriving the tooth of nourishment from the pulp and probably losing the tooth by abscess, and preserving it alive, which is much more desirable.

I have, within the last four months, since I commenced practising in Atlanta, capped twenty-one, quite a number of which were very extreme cases, where the nerve had been exposed, and at times aching for months—some in hypertrophied condition and protruding from nerve cavity. I think the success of the operation depends very largely in removing every particle of decayed or softened tooth substance and then thorough desiccation, after which the pulp and cavity must be freed from microbes. For this purpose I used meditrina or electrozone, which is the greatest microbe killer we have, and has no escharotic effect, is not toxic, does not coagulate albumen, and does not irritate. It is applied after desiccation, and clamp adjusted on the tooth. Everything is ready for capping and filling by dipping a little pellet of cotton in the solution and placing it in the cavity gently, letting it remain a moment or two while you are preparing the cement for capping. Then remove it and gently dry with bibulous paper, and proceed to place the cap: 1st, mix the powder of cement (any cement) with equal parts of oil of cloves and birch wood creosote, to the consistency of cream, when a little lump of it can be taken up on the point of a blunt instrument and conveyed to the cavity, letting it gently glide off the instrument into the bottom of the cavity, and drawing the instrument across the cavity in such a manner that the preparation is dragged over and envelopes every point of the exposed pulp. This is an antiseptic substance, non-irritating and nearer analogous to tooth-substance than anything I know of, and leaves no space for the retention of serum. The excess of the liquid preparation is imbibed from the cavity by gently touching fibres of bibulous cotton to it. When dry, mix the cement in the usual way about as thick as cream, take up a little on the blunt end of the instrument and let it glide off the same way into the bottom of the cavity and all over the exposed pulp. When hard, the cavity is ready to proceed with filling. When thus done you need have no fear as to future trouble.

Since my last report at Indian Spring, in June, I have capped seventy-seven with but one single failure being reported. I am always very particular to explain to my patient just what I am doing, and the advantages of saving the tooth alive, and request them that in case they have any

trouble to report to me, and if they should have to apply to another dentist for relief, I want to know it, so as to keep up my report of failures. I find that my patients appreciate this, and are always willing to do as requested.

Southern Dental Journal.

A METHOD OF RETAINING THE RUBBER DAM WHEN FILLING CAVITIES BELOW THE GUM MARGIN.

By Dr. W. H. TAGGART.

I think you will all admit that for soul-stirring and sweat-producing conditions there is nothing that will take rank with the preparation and filling of buccal cavities in lower molars and bicuspid, and the labial cavities of the central incisors and anterior teeth. There have been a great many clamps devised for this purpose, but it has seemed to me they fall far short of the one thing, and that is, to reach exceedingly bad cases. Those clamps that have been invented will reach the ordinary case and Dr. Dunn's recent clamp goes a step farther than any of the others; but still there are a class of cavities, taking molars in particular, that the clamps on the market will not reach. I have devised something and have been using it recently, which I think will serve the purpose. I have used the form for some time, but more recently I started to perfect the idea because I felt it was a very excellent one. I have samples here of the different kinds of cavities with rubber dam on, and I will now explain briefly the process with its results, then pass the models around and allow you to get ocular demonstration.

I take small tempered steel wire and form it into little wedge-shaped points similar to a hatchet excavator tapered flat toward the point. These vary from one-sixteenth to one eighth of an inch long. These wedge-shaped pieces of steel are too small to handle with pliers and to put them in the difficult positions in the mouth which we have to contend with. So I have taken a plugger point and in the end of it have bored a small hole half the depth the pin is long, so as to form a pocket for the pin to be held in. I then magnetize this point, and the magnetism holds the very small steel

wedge into the hole with no danger of its dropping out. It holds it firmly in the end of the piece. I then put the rubber dam over the tooth, and with the little point in the instrument draw it down until I get to a firm point well below the margin of the cavity in the cementum, and when I get it in a firm position by giving one blow or two I drive the wedge-shaped point into the cementum. At first thought some one would say that this would injure the cementum ; but the fact that you are able to get it down there and are able to put in a perfect filling and finish it properly, more than outweighs any apparent injury which you may do to the tooth. You can do no injury anywhere, because it is well beneath the gum, and the pericementum is elastic enough to close the wounds. I have a tooth in my office which I have punched in there a hundred times, and Dr. Newkirk tried yesterday to find the defects. It does not show any blemishes. Take a tooth only filled once, we can do no possible injury to it. The lingual surface of the tooth does not need any clamp.

Dental Review.

HOW TO TREAT SENSITIVE DENTINE.

By Dr. A. H. BUTTERFIELD, Stamford, N.Y.

Carefully selected, well shaped, small and sharp instruments, with a well-trained hand, are more than half the requirements of painless work. I regard a well-adapted instrument of small size of more importance than medication in sensitive dentine. Last winter I commenced using sulphuric acid, preparatory to filling roots, and observing its anæsthetic effect I tried it on sensitive dentine, with enough success to embolden me to further use it. Now, with few exceptions, I am able, with its use, to operate on the most sensitive teeth without discomfort to the patient.

At my chair I have a syringe nozzle connected to a handle ; this is connected by a flexible pipe to a large cylinder (built like the air-chamber to an ordinary hot-air syringe), which is heated by a moveable flame, so that the air can be heated from moderately warm to hot. Back of the cylinder, and in connection with it, is a chamber into which I put my

medicament. This is controlled by a two-way cock ; a lever of this cock is within easy reach of the chair, and by operating this lever I can allow the air to pass through the medicament, or not, as I choose. This, in turn, is connected by a system of pipes, to the laboratory water motor, which operates an air-pump. By starting the water-motor I can force a continuous stream of hot air, medicated or not.

After adjusting the rubber-dam, or using some other means of preventing moisture from entering the cavity to be operated on, I turn on the air-blast and thoroughly dry the cavity, then I put in a drop of sulphuric acid. After waiting a moment I wipe out all surplus, and with the warm air-blast dry, after which, with small, sharp burs (or excavators) I can excavate without discomfort. After excavating I usually place a portion of unused soda to neutralize any acid that may be present, and proceed to fill with whatever material my judgment dictates.

The medicament used in the chamber spoken of is composed as follows :

Carbolic acid,	
Oil cloves,	
Oil cajeput	aa $\frac{3}{4}$ j.
1, 2, 3, mixture	$\frac{3}{4}$ j.

The use of which is to allay the discomfort sometimes caused by the blast of air on the dentine, and I find it very efficient.

Dominion Dental Journal.

HOW TO MAKE RUBBER STAMPS.

By Dr. CRUTTENDEN.

The manufacture of the common rubber stamp can be made with the apparatus a dentist uses in every laboratory, with the exception of the use of the ordinary printer's type. This you can have set up for you at any printing office. See that the matter you want has lead about the edges at least $\frac{1}{8}$ of an inch outside the type. It will be tied up with a string. Oil slightly the face of the type, place on a smooth surface and see that all the letters are level ; then take a strip of paper about one and a quarter inches wide and long

enough to go about the type and lap ; tie this with a string or rubber band. This you will fill with plaster of Paris, being careful not to have air bubbles or seams ; when set remove the paper and separate carefully the type from the impression ; trim the cast off so it will be level and smooth about where the shoulder is, so that the type will be equal depths in all parts, have the cast about that thickness also. It is now ready to put into a flask. You can use the ordinary dental flask if it is not too small, or you can make one which will fit into a two flask vulcanizer. Make the iron bands the same size out of five-eighths iron welded or riveted together to the measurements of $2\frac{1}{2} \times 4\frac{3}{4}$ in. ; have pins or guards on the sides to keep them in their proper place. The top and bottom are made of 3 in. band iron, size $3 \times 4\frac{3}{4}$ in. ; cut four notches in each piece to place bolts, which are made of common $1\frac{3}{4}$ bolts with one side filed off so that it will be flush with the edge of the flask. Insert the cast in the lower part of the flask the same as you would a set of teeth, having it even, care being taken not to get plaster into the impressions of type.

Next take a piece of gutta-percha or sheet wax, cut it to the size you want the rubber, place over the cast, covering up the impression, wax down the edges so no plaster can flow under it, then shellac and fill the other part of the flask with plaster ; when set, remove sheet and pack with rubber, treating it the same as you would for a set of teeth. You can use dental rubber, but you can get the regular stamp rubber, which is much cheaper ; clamp the flask tight and vulcanize to 300 degrees, then permit it to cool. When cold remove and clean, trim the rubber and glue to any handle the proper size.

If you have no ink pad, you can easily make them by taking two pieces of wood the same size, place a pad of cotton on each piece and cover with cloth. Put your ink upon the padded surfaces and rub together, spreading the ink.

Dental Review.

EUROPHEN and boracic acid in equal parts makes a valuable dressing in the treatment of pyorrhœa, alveolar abscess, necrosis, or for any suppurating surface. Either powder or mix with glycerine to form a paste.

Dental News.

THE DENTAL HOSPITAL OF LONDON.

The usual annual *conversazione* was held on the 20th ult. at the galleries of the Royal Society of British Artists. Sir F. Lockwood, Q.C., M.P., was in the chair.

Mr. Morton Smale (Dean) gave an account of the present position of the Institution, which is in need of funds to meet the expense of rebuilding in Leicester Square. Prizes were delivered to students in metallurgy, dental mechanics, operative dental surgery, dental anatomy, and dental surgery.

Sir F. Lockwood said that he came before them as a member of another profession, equally unpopular he believed with that of dentistry. (Laughter.) He supposed if there was one thing a man liked less in life than going to see his dentist it was going to see his lawyer. (Laughter.) At any rate he got much more out of the dentist than out of the lawyer, and when he had finished with the former he knew the worst. (Laughter.) He had had an opportunity of learning something about the hospital, in which he hoped the public would take special interest. *Imprimis* the object was to afford gratuitous advice and to execute operations gratuitously among the class of people who could not afford to pay. That should be a great claim upon the community at large, and should, indeed, excite their warmest sympathy and admiration for such an Institution. The secondary object was to afford those who were about to embark in the profession the necessary experience with profit to themselves and a reasonable amount of comfort to their patients. (Laughter.) As he understood it they were to be dentists pure and simple. They knew that "to the pure all things were pure," but the lawyer who was merely "simple," God might help, but no one else would. (Laughter.) They were going to practise dentistry alone. He did not wish to criticise such a condition of things. Dentistry was a branch of surgical aid and medical skill that was well worthy of study alone as distinguished from other branches. He might say that in country districts specially it would be well if the "practitioners" had at least a superficial knowledge of dentistry. (Hear, hear.)

Some of them would remember a famous picture by John Leech, in which an unfortunate man was being dragged round the room by the operator, who at last produced the tooth with the remark, "Well, that is not bad for a first attempt, is it?" (Laughter.) Vast strides had been made since those days, and he should think they had found that prevention was better than cure. With regard to the hospital he was much struck by the figures in the report. In 1874, 19,255 cases were treated, and last year the number was 57,654. It was usual to treat the subject of toothache lightly. Benedict in "Much Ado About Nothing," said somewhere that "he had the toothache" and it always raised one of the biggest laughs in the play. But it was not fun for Benedict, nor was it for the poor people who suffered. In savage conditions he understood that the infirmity was borne with stoical indifference and lived down. But that could not be done in a civilized state, and the hospital could not win its way to the public better than by demonstrating that it was doing a great and good work. (Cheers.)

Programme of Prize Distribution.

Saunders Scholarship—Mr. T. H. Miller, M.B., B.Ch.
Ashs' Prize— Do. Do.

Class Prizes.

WINTER SESSION, 1896-7.

Metallurgy—The 1st and 2nd Prizes are divided equally between Mr. T. H. Miller and Mr. T. W. Thew.

Dental Mechanics—1st Prize, Mr. N. Miller; Certificate of Honour, Mr. T. W. Thew.

Operative Dental Surgery—1st Prize, Mr. N. Miller; 2nd Prize, Mr. T. W. Thew; Certificates of Honour, Mr. T. H. Miller, Mr. S. D. Hey.

SUMMER SESSION, 1897.

Dental Anatomy—1st Prize, Mr. T. H. Miller; 2nd Prize, Mr. N. Miller; Certificates of Honour, Mr. J. W. Hislop, Mr. Manning, Mr. Z. J. Gibson.

Dental Surgery—1st Prize, Mr. T. H. Miller; 2nd Prize, Mr. W. H. Thomas; Certificates of Honour, Mr. N. Miller, Mr. J. W. Hislop, Mr. A. G. Payne, Mr. O. C. Penfold.

DEATHS UNDER ANÆSTHETICS.

THE ADMINISTRATION OF SAFE ANÆSTHETICS.

H. Bellamy Gardner, M.R.C.S., L.R.C.P. Lond. Assistant Anæsthetist to Charing Cross Hospital and to the Male Lock Hospital (Welbeck Street, W.), writes : Under the heading of "The Safe Administration of Anæsthetics" several communications have appeared lately in the pages of the *British Medical Journal*, chiefly devoted to the worship of wierd and manifold remedies (always a sign of their futility) for the difficulties and dangers of chloroform administration. I would beg to humbly suggest that if this title were transposed and our attention, and more especially the teaching in the schools, were directed to the administration of safe anæsthetics we should have less of the terrible mortality from chloroform which week by week is reported in the medical press of the present day.

From the most carefully collected statistics we know that the mortality from chloroform in England and the Continent is very nearly 1 in 2,300 administrations, that of the A.C.E. mixture is one in 5,000 cases, that of ether 1 in 13,500 inhalations, while nitrous oxide gas has a scarcely appreciable mortality, and yet practitioners in Ireland and the English provinces keep writing about chloroform as if they had never heard of ether at all. Dr. Junker's mythylene and chloroform inhaler, which has been used for a score of years, was actually figured in this Journal during last month as if it were a heaven sent gift and panacea for all perturbed anæsthetists. The fact is that several deaths have occurred in connection with its employment. It is not by "methods" with chloroform, but by learning how to give ether and nitrous oxide gas properly that the number of these lamentable deaths under chloroform can be reduced.

Those of our London anæsthetists who have a lifetime of experience rely almost exclusively upon ether and gas and ether for the whole of their routine work ; only giving chloroform when ether becomes inadmissable. Snow and Clover did the same. We must indeed, be blind and prejudiced if, to save taking a little trouble, we go on giving chloroform to the most trivial cases requiring anæsthesia, knowing all the time that the drug is so difficult to eliminate when grave

symptoms appear that we dare hardly expect to save the patient whose respiration ceases under its influence. The extreme rarity of a death from ether and its stimulant effect upon the whole system, obvious even to a layman, is daily being more appreciated by the public, who are after all the best judges. They care little for the "schools" of this and that drug; but they very rightly do not want to risk their lives for no justifiable reason, and we ought not to tempt them to do so.

British Medical Journal.

THE DENTIST'S DOG.

After an unsuccessful attempt, Dr. Ainslie, of New York, has succeeded in stopping a decayed tooth in the mouth of his favourite St. Bernard. Colin, the dog in question, recently turned sullen and refused to eat, and as his master has an unpleasant recollection of a sojourn in the Pasteur Institute owing to the wounds inflicted on him by another St. Bernard, he determined on a thorough overhauling of his big pet. Having satisfied himself as to the cause of the dog's indisposition, Dr. Ainslie took him to his odontological studio—it would be inappropriate to use a more homely phrase in connection with a New York dentist—and with some difficulty placed him in a big chair. All went well until the drill began to work on his tooth. With a convulsive effort Colin broke away from the assistants and made a wild jump through an open window. On returning to his house the doctor found the dog none the worse for his leap, but animated by considerable suspicion of his master. However, next day, by dint of much coaxing, he was got into the carriage, brought back to the dental establishment, anaesthetics soon reduced him to unconsciousness, and now Colin enjoys the proud privilege of being the only St. Bernard in New York with a gold-filled tooth. The privilege, however, carries with it the drawback of publicity, for Colin has had his portrait, as he appeared under anaesthetics, in the *New York Herald*, without being consulted, and has been interviewed by a number of inquisitive strangers, all anxious to prize open his mouth. If he had been a Duke he could hardly have fared worse.

Globe.

DENTAL AND ACCIDENTAL.

An eye for an eye, a tooth for a tooth, was scarcely the law administered by the Judge of the Clerkenwell County-court last week in which a lady sued a dentist of Caledonian-road for taking out a wrong tooth. The Judge considered that a tooth was worth £10, and he awarded that sum to the plaintiff, whose story of her loss was that she had a bad wisdom tooth and supposed that such teeth were not usually removed, but the dentist said they were, and proceeded to operate with the result stated. He declared that the thing was a pure accident and caused by the lady moving her head and shifting his forceps to the next tooth, but it was of no avail. Dentists will have to be particular in future now that the value of a human tooth is assessed. Some people attach no value to their teeth. There is an individual called "Sequah" who went about the country selling medicine and drawing teeth by the bushel, and he is now starring at music-halls exercising the same art and finding plenty of volunteers who elect to have as many as three teeth removed apparently just to experience the operation. Now that teeth are known to have a market price we should think there will be a dearth of volunteers for either Sequah or any other mountebank. If one sound tooth is worth a whole set of artificial ones we commend to the people the preservation of their molars and incisors—especially from dentists with unreliable forceps.

Islington Gazette.

IN THE SMOKING-ROOM.

By BARRY PAIN.

"The other day," said the Journalist, "a dentist introduced into his practice a little variation with a red-hot iron. It's funny and not vulgar, but it does not seem to be allowed by the rules of the game—in fact, the patient—a woman—sued the dentist and got ten pounds out of him."

"He won't enjoy drawing that cheque," observed the Mere Boy, "nearly as much as he enjoyed drawing that tooth."

"Sorry to spoil the point of your remark," said the Journalist; "but as it happened he did not draw the woman's tooth, he stopped it."

"Ah!" retorted the Mere Boy, "and I daresay he'd like to stop that cheque as well."

"Anyhow, I'm glad he had to pay," said the Ordinary Man. "I'm always glad when suffering and sorrow befall a dentist. As a rule the dentist gets all the amusement and the patient gets all the agony."

"But surely," the Eminent Person said, "the red-hot iron belongs to the Dark Ages. No modern dentist—"

"This man was not a dentist," explained the Journalist. "He was the son of one, and he was assistant to one, but he was not a dentist himself."

"Which goes to show," said the Ordinary Man, "that there is a limit to the modifying powers of heredity and environment."
Black and White.

PULP CAPPING.—Dissolve sufficient gutta-percha in chloroform to half fill an ounce vial.

Add—Oil of cloves	...	...	m xx.
Tannin	...	...	gr. x.
Carb. acid	...	...	m. xx.

Seal and shake till satisfied of a perfect mixture. Then open and allow the chloroform to evaporate. There will remain a putty-like mass, which is always ready for application.
Welch's Monthly.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

Twelve Months (post free) - - - 14s. od.

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British Journal of Dental Science

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LONDON, AUG 16, 1897.

Vol. XL.

COPPER AMALGAM AND COPPER CROWNS.*

By Mr. J. MAHONEY.

Mr. President and Gentlemen,—It is not because I have anything new to give you that I am here this evening, but because I was waylaid by our energetic Secretary at the commencement of this Session, and in a weak moment was induced by him to promise something towards the syllabus, so if you think it necessary to blame anyone for this cruel infliction, you must lay it all on Mr. Shorrocks.

Copper Crowns and Copper Amalgam were two short papers suggested to me for this occasion, and I thought that I might as well give these as any others, not because I considered myself an authority on either, but because they seemed the easiest mentioned.

We will commence with Copper Amalgam. This may be made in the following way :—

Copper Sulphate (Cu SO_4) is dissolved in water, about one ounce to the pint.

Care must be taken not to have the solution too strong; otherwise, the copper precipitate will be too coarse.

When all the salt is dissolved the copper is thrown down by the aid of either Zinc or Iron. Iron is much to be preferred as you can obtain a much cleaner amalgam than by using Zinc which is an important consideration.

* Read before the Dental Students' Society of Manchester.

I have found the best Iron to use for the purpose is what is known as black sheet Iron, cut into strips of about $1\frac{1}{2}$ inch broad and whatever length is convenient according to the depth you make the solution. I have generally used a jug which holds about $1\frac{1}{2}$ pints.

The strips of Iron must be well cleaned before placing in the solution, this can be easily managed by leaving them for a short time in sulphuric acid diluted, and then well washing them in water.

The iron being now ready, place 3 strips in the solution for 24 hours. I have found that 3 strips of iron about the size mentioned will in about 24 hours throw down all the copper, out of 1 oz. of Cu. SO^4 ; you can tell by the colour of the solution when all the copper is deposited, as it becomes lighter, and all the blue disappears.

The metallic copper being now obtained, it should be thoroughly washed, which process is best accomplished by allowing a gentle stream of water to run into the jug for about half-an-hour, after which rinse quickly with strong sulphuric acid, wash away and rinse again with mercuric nitrate.

The sulphuric brightens the surface of the copper and the mercuric nitrate coats it with a thin film of mercury, which hastens the amalgamation, for which process it is now quite ready.

Add the mercury slowly, (the proportion is about 3 Cu to 7 Hg.) making good use of the pestle, squeeze out the superfluous mercury through a chamois leather and make into pellets.

Care must be taken not to use too much mercury in the preparation as it is rather difficult to squeeze out to the proper proportion, and the more mercury the greater the discolouration, and the softer the filling. At the same time you must not use it very dry in the mouth as the shrinkage is increased thereby; and the plug would not be water-tight.

The amalgam should be allowed to set before using, as the filling becomes harder and sets quicker after heating up again; in fact, you can make a quick-setting filling of it if you soften it several times, allowing it to harden each time before finally using in the mouth.

The chief defects of copper amalgam, and which are possessed by all amalgams in a more or less degree, are as follows :—

- (1). Shrinkage in setting.
- (2) Want of hardness.
- (3) Discoloration of the surface.
- (4) Staining of the substance of the tooth.

To overcome the first :—As before mentioned do not use the amalgam too dry, but in a moderately plastic condition, and in filling the tooth use heavy pressure, with pledgets of cotton wool, the result being that the fluid portions appear around the edges; these can be removed and more amalgam introduced, and a very good result obtained. In filling large cavities a good plan is to put in some pieces of old amalgam which have set, then there will be less bulk of the new, and therefore less shrinkage.

If only used in the temporary teeth, want of hardness is not so important. However, it becomes a little harder if heated and reheated several times, allowing it to set each time.

By mixing about equal portions of submarine or contour with the copper amalgam you can obtain a more durable filling, with the advantage of the antiseptic properties of the copper and less discolouration of the tooth.

Its want of toughness cannot very well be overcome, and therefore, this should be taken into consideration in the preparation of the cavity, so as not to leave any overhanging edges of amalgam which would break down.

Discolouration depends chiefly on the amount of cleansing

before using. Each time the stopping is prepared it should be well washed in dilute sulphuric acid 1 in 16, but care must be taken to get rid of all the acid before insertion, which can be accomplished by washing in ammonia.

Lining the cavity with an osteo will prevent the tooth becoming stained, but if the tooth be completely covered inside the antiseptic properties of the copper will not be able to act on the dentine. If, however, the tooth be partly lined, the tooth does not become stained, and the copper salts have free action on the dentine.

The chief virtue of copper amalgam is its power of preserving the dentine from caries, and in cases where the dentine has become softened, as is often the case in milk teeth and in six-year-molars. This is hardened by the copper salts, and after a time is brought back to a healthy condition, so that at some future date the filling can be replaced by something more permanent.

COPPER CROWNS.

It was suggested by a gentleman connected with this institution (The Victoria Dental Hospital) that in cases where patients presented themselves for Crowns, and were unable to bear the cost of gold, that they should be supplied with ones made of copper.

Now if these can be applied so that they are a success in the mouth, two purposes will be served, viz. :—patients will have restored broken down teeth, free of cost, and the student will have received an exercise with very little expenditure.

Not having had a large experience with this subject and wishing to give you something reliable, I have written at the suggestion of Mr. Geo. O. Whittaker to Dr. Cunningham, of Cambridge, who has had considerable experience with these Crowns, and he very kindly sent me the results of some experiments which he had made.

I will now quote from these notes :—

“ One of my servants kindly consented to let me make the experiment of restoring a broken-down, second, right, upper molar root with a copper crown.

It was placed in the mouth 14th March, 1892, and did good service until 11th September, 1892. It was then found to have been gradually worn through in mastication. A similar Crown in dental alloy, heavily gilt, has been substituted for the copper crown.

In March, 1892, the left, lower, first molar had broken down including a considerable splinter of the root, and an effort was made to restore it by means of a large amalgam, matrix filling, as the patient said she did not wish to have another copper crown, as she fancied she felt a kind of metallic taste in her mouth on rising in the morning, otherwise she had no complaint to make. In nine months, however, the large amalgam filling broke down, when the patient consented to have another copper crown adjusted. For the purposes of comparison, this copper crown was heavily gilt, and the patient made no complaint whatever as to the metallic taste, which remained for about an hour or so after the insertion of the purely copper crown, nor did she experience any taste in the mornings. The gilt crown was worn through by mastication, and therefore loose. On the 17th June, 1895, a new crown was added to the old ferrule, and a slight crack in the latter being soldered at the same time. It was re-gilt, and has been doing good service ever since. On examining the crown on the 23rd February, 1897, it was found to be in perfect condition, quite bright and polished where there was friction, and somewhat discoloured near the cervical margin on the approximal and lingual surface. The patient's impression is that she would be quite content to put up with plain copper crowns, if she could not have anything better, and she professes a distinct preference for the gilt,

copper crown, and that she cannot make any distinction between that and a gilded dental alloy crown."

We learn from what I have just quoted that gilded copper crowns have been a success in Dr. Cunningham's hands, and there is no reason why we should not be able to do likewise.

I have placed several molar crowns in the mouth and found them to work about as easily as gold. These have not been worn long enough for me to test them thoroughly, but I do not expect to have them worn through very easily, as the inside of the crowns was thickened with silver solder.

The copper I used for the purpose is No. 5 Ash guage. This was in rather a rough condition, so that when it was smoothed and polished, it became about $4\frac{1}{2}$ in thickness. It is necessary to have it a little thicker than gold as it is softer.

The solder which I use consists of 2 silver to 1 brass. This with plenty of borax flows quite easily. The making of the bands and soldering the crowns worked quite as easily as gold.

If copper crowns or crowns of an inferior metal be generally adopted at this hospital it will be as well to give a word of caution, viz., that they should only be used where caries has been eradicated, and in mouths that are kept scrupulously clean.

The question as to whether there are any other metals which would answer the purpose better than copper I shall leave for discussion.

To remove black grease from the hand after handling flasks, use a small quantity of spirits of turpentine. Rub this well all over the dirt, then wipe with dry cloth, then use soap and water. After drying, use vaseline or glycerine,

DENTAL MECHANICS.

By HARRY ROSE, L.D.S., Eng.

APPLIANCES AND DEVICES FOR THE CORRECTION OF
DENTAL IRREGULARITIES.*(Continued from page 581).*

Other devices for expanding the dental arches are the Talbot Regulating Springs* (Fig. 13-14). These give us a



Fig. 13.

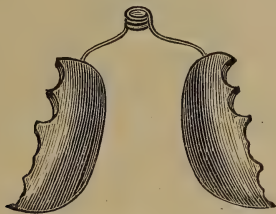


Fig. 15.

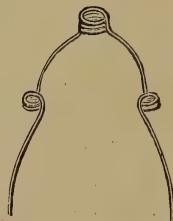


Fig. 14.

power much more under control than a spiral spring, inasmuch as the pressure can be exerted (by a proper adjustment of the arms) both at the anterior as well as at the extremities of the spring.

This appliance is best used in conjunction with light vulcanite plates (Fig. 15), to which the spring may be attached by ligatures, or preferably vulcanized in, the same precaution being taken as in the case of the Coffin spring, to tin the part that is inserted in the vulcanite.

The vulcanite plates give a better bearing surface against the teeth and prevent displacement. Modifications of both

this and the Coffin Spring may be used for separating, as well as drawing teeth together.

We will now turn our attention to those cases where we have to push or draw into position individual teeth ; this operation may be effected either by pegs, springs, ligatures, elastic bands or screws.



Fig 16.

Fig. 16 is a simple case of pegging ; in this case the teeth were only partially erupted, and consequently very short; the plate has been cut away somewhat in the drawing to show the position of the pegs, which were lengthened as the teeth moved.

With ordinary drawn hickory pegs left projecting from the plate, one is able to make a case that the patient can remove and clean ; this being a hospital case rendered it even more necessary to place no obstacle in the way of so doing.

To use compressed wood for the same purpose, one ought to be able to ligature or clasp the case firmly to the teeth to prevent any movement taking place when the wood expands, and care should be taken to select such teeth as will resist the force that is executed when the wood gets moistened.

To illustrate the amount of force exerted by compressed wood, one has only to take, say, a piece of deal or willow about $\frac{3}{4}$ of an inch square. Now place the piece in a vice with

the grain of the wood parallel with the jaws, and then compress until it is reduced to one half its original thickness. Next with a fret saw cut narrow blocks across the grain, and file these up until about the size of the hickory pegs sold at the depots for regulating purposes.

We will now take an ordinary vulcanite plate and drill a suitable chamber in it, to allow the compressed wood to be inserted, and to come flush with the surface of the vulcanite. If we place this plate in water we shall find in twenty four hours or even less, that the wood has expanded to its former length, and now projects one half from the plate. Instead of a hole drilled in the vulcanite one can have a dovetailed slot to contain the compressed wood. The slot should be widest where it impinges on the tooth and should taper both upwards and backwards.

The rapid expansion of compressed wood to its original length proves most conclusively that the plate should be firmly secured to several strong teeth, to resist the force at any rate until the tooth begins to move.

With short teeth, pegs are often more useful than springs, as they are not so likely to get disarranged or misplaced. In all cases it is as well that the bite should be so raised that the tooth or teeth to be operated on may pass freely forward without coming into contact with the opposing teeth. In some cases, more especially in the upper jaw, where a front tooth has a decided slant inwards, a peg cannot be used with effect, as the projecting peg would not clear the point of the tooth and touch the back. This is a case in which compressed wood could be employed with advantage. Nor is a tooth with much of a slant outwards suitable for pegging, as there would be a tendency to shorten it instead of pressing it forwards.

In the first of these cases we may also adopt the following method.

Dry the plaster model and while warm paint it with chloro-rubber, then adapt a soft rubber plate to it to the size required, bringing it over the molars and second bicuspid. Next take a piece of hard gold or German silver wire about half the thickness of pin wire and bend it so as to conform to the arch of the front teeth.

The ends are now flattened, and after being warmed are pressed into the soft rubber and vulcanized. Fig. 17 represents such a plate. When finishing the plate up the rubber is cut away from the back of the misplaced tooth, and a small

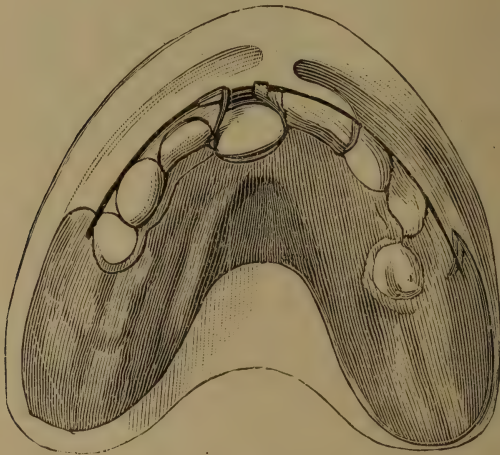


Fig. 17.

India rubber band made from a piece of Maw's feeding bottle tube, is passed round the wire and threaded through itself, so forming a little loop which can be stretched over to make the necessary traction on the tooth. A convenient way for drawing the loop of rubber over the tooth is to pass a little piece of thread through it; the thread enables the patient to stretch the elastic ring, and to draw it over the misplaced tooth, and renders the operation simple.

(To be continued).

British Journal of Dental Science.

LONDON, AUGUST 16, 1897.

TO THE "SLEEPING" DENTIST.

Any member of the public, who may happen to be a casual reader of dental literature, and of the transactions of dental societies, is probably of opinion that there are about a score of Dentists in the United Kingdom, and in the United States about the same number. Indeed it is a most astonishing thing that the speakers at society meetings, and the writers in dental journals are selected from but a small group, and do duty again and again. It is not that new talkers and new writers are not gladly welcomed, but that a veil of an impenetrable kind seems to cast a shade over the bulk of the members of the profession, so that neither are they seen, nor are they heard. They enter the profession from some obscure cause; they take in, and partly digest, that which they are taught; purchase a practice with their parents' money; earn an uncertain income with a modicum of work and, apparently, live happy ever afterwards. But it is of this very happiness that we are in doubt. For when, on occasion, we have mouselike listened to their talk, it has been strangely suggestive of rambling discontent. It would seem that they studied, what others have worked to learn, passed an examination with the minimum number of marks, paid their fees with somebody else's money, and then strange to say, after this large expenditure of energy they actually find they are not protected by some thick-set hedge, hushed off to sleep on some soft mossy bank, and generally cared for as becomes a "duly qualified man." It is a direful condition of affairs, and it is obvious that the framers of the

Dental Act and the leaders of Dental Societies have made a sorry muddle of it all, and a muddle it is and ever will be. So say they. Let us think for a moment. That the Dental Act is not perfect, even its framers admit, but have we as a body exerted ourselves to the full to get it amended or to carry out its provisions as far as may be. In the first place, let us remember that, whether we wish to reach our aim by moral force or by legal means, it is essential that each member of the profession must exert himself to the full. In this country numbers count. It is not the effort of the individual unit which forms public opinion, it is the united action of numbers which moves it. Each individual who, while grumbling does not help loses an opportunity aiding progress. Each individual who stands aside from his brethren, because he disagrees with them on minor matters, checks progress. It is probably utopian to dream that we can ever entirely purge the country of illegal practitioners or that we can entirely clear our ranks of those who disgrace the profession of dentistry by coquetting with dishonesty, publishing misleading advertisements, or by other means, but we may hope that in time these things may be so disassociated from that which is best in the practice of dentistry as to carry their own disgrace.

"Laws," said Sir Philip Sidney, "are not made like chains to bind, but like posts to guide." No Dental Act, however perfect, will bind all Dentists to a code of ethics, it can but guide them. The surest way to do so is by education. Self-education first, then that of the public. But for this a united effort must be made, all must help, and for the effort to be in unison, each keeping in touch with his fellow-practitioners, sacrificing personal ease for the common good.

INEBRIETY AND THE GERMAN LAW.—The new Bill which comes into force in Germany on 1st January, 1900, enacts compulsory treatment of habitual drunkards, viz., all those who on account of inebriety cannot provide for his affairs,

or bring themselves or their families into the danger of need, or endanger the safety of others, will be liable to be placed under a curator who will be empowered to place such individuals anywhere for treatment until the Court discharges themselves.

DENTAL SOCIETIES IN FRANCE.—There are now four recognised Dental Societies in Paris. The Societe d' Odontologie, Société Odontologique de France, Syndicat de Chirurgiens—Dentistes diplômés, Syndicat de Chirurgiens—Dentistes patentés. *Patentés* is equivalent to our "Registered."

ALL GLASS SYRINGES.—Syringes are now made by Mr. A. Wulffing Luer, 6, Rue Antoine Dubois, Paris, all from glass. The piston is of glass ground to an accurate fit so that no washers are required, they are much cleaner than the syringes now in use.

HUNGARIAN STOMATOLOGICAL SOCIETY.—A Dental Society under this title is formed in Austria, in which only those who possess the title of M.D. are eligible as members. Those who are entitled otherwise to practise (Zahnartzte) are not admitted as members. The first president is Dr. Arkövy, and the membership is very small at present.

CARBOLIC ACID.—Carbolic acid in Ireland has now been scheduled as a poison in accordance with the Sale of Poisons Irish Act, by which it cannot be sold by chemists without obtaining the signature of the person who buys it, and who is known to the chemist. A Bill dealing with the question, and similar other points is under the consideration of the Government.

DECAY OF CHILDREN'S TEETH.—Dr. Crawford believes that one of the most prominent factors in the decay of children's teeth is the present school system whereby children of tender age up to ten years are deprived of the natural healthy and open air life and exercise, the nervous system being unduly stimulated at an age when all the energies are demanded for upbuilding the physical strength, and converting food material into bone, blood, skin and muscle.

INOCULATED RABBITS AT LARGE IN PARIS.—The police have succeeded in finding some of the persons to whom rabbits were sold. The rabbits were stolen a few days ago from the Pasteur's Institute, and were inoculated with cholera, anthrax, typhus, rabies, &c. The robbers were arrested, and made full confession of the robbery and helped the police to trace some of the persons who bought them.

ROOT CANAL FILLING.—Salol with gutta-percha points make a valuable antiseptic root canal filling.

ROYAL COLLEGE OF SURGEONS.—The Museums and Library of the Royal College of Surgeons of England will be closed from August 28th (instead of, as usual, from August 31st) to Oct. 1st in order to facilitate the arrangements for painting and redecorating the hall and staircase.

THE INTERNATIONAL MEDICAL CONGRESS AT MOSCOW.—It is expected that about 5000 members will be present this meeting. Half of that number are Russians, 800 Germans, 600 Austrians, 500 French, and 100 from various other countries, and that about 100 will be dentists.

Abstracts of British & Foreign Journals.

SURGERY WITHOUT ANÆSTHETICS.

By F. W. S.

One of the most interesting papers read at the recent celebration in Boston of the fiftieth anniversary of the first administration of ether in a surgical operation was that by Dr. John Ashhurst, of Philadelphia, on "Surgery Before the Days of Anæsthetics." It vividly recalls the horrors of those days when the surgeon's knife was an object of far greater terror than now, and inflicted untold tortures upon the conscious patient.

"A study of the condition of surgery before the days of anæsthesia," said Dr. Ashhurst, "reveals on the one hand a picture of heroic boldness and masterly self-control on the part of the surgeon, and on the other a ghastly panorama, sometimes of stoic fortitude and endurance, sometimes of abject terror and humiliation—but always of agonizing wretchedness and pain—on the part of the unhappy victim who required the surgeon's aid.

"The 'pitilessness' which Cæcus urged as an essential trait in the operative surgeon was, before the days of anæsthesia, a feature in the surgeon's career which impressed very strongly the public generally as well as those immediately connected with the operation. It is interesting to recall that Sir James Simpson, of Edinburgh, shortly after beginning his professional studies, was so affected by 'seeing the terrible agony of a poor Highland woman under amputation of the breast,' that he resolved to abandon a medical career and seek other occupation; happily his intention was reconsidered, and he returned to his studies, asking himself 'Can anything be done to make operations less painful?' and, as every one knows, in less than twenty years became a high priest of anæsthesia, and the introducer into surgical and obstetrical practice of ether's great rival, chloroform.

"No braver or more gallant gentleman ever lived than Admiral Viscount Nelson, and after his right elbow had been shattered by a French bullet in the assault at Teneriffe he manifested the utmost courage, refusing to be taken to the

nearest ship lest the sight of his injury should alarm the wife of a fellow officer whose own fate was uncertain, and when his own ship was reached he climbed up its side without assistance, saying, 'Tell the surgeon to make haste and get his instruments. I know I must lose my right arm, so the sooner it is off the better.' 'He underwent the amputation,' we learn from a private letter of one of his midshipmen, 'with the same firmness and courage that have always marked his character.' And yet so painfully was he affected by the coldness of the operator's knife that when next going into action at the famous battle of the Nile he gave standing orders to his surgeons that hot water should always be kept in readiness during an engagement, so that if another operation should be required, he might at least have the poor comfort of being cut with warm instruments.

"On the side of the surgeon we find throughout the ages a constant effort to diminish the terrors of operations and a continuous reprobation of the distressful, not to say cruel, modes of practice adopted by preceding generations. And yet the time is not so very far distant when they lopped off a limb by striking it violently with a heavy knife; the time when they knew neither how to stop nor how to prevent hæmorrhage but by burning the part whence the blood jetted with boiling oil or the red hot iron; the time when surgeons armed themselves at every moment with pincers, with burning cauteries and with instruments the representations even of which cause terror.

"The belief that operations might be rendered painless appears to have been present in the minds of surgeons from the earliest periods. Witness the accounts of the Memphis stone, described by Dioscorides and Pliny, which by steeping in vinegar was made to give forth the fumes of carbolic acid; and of the mandragora, employed, according to Theodoric, when mixed with other narcotics, by inhalation, and causing a sleep from which the patient could only be aroused by the fumes of vinegar. So profound was the stupor induced by this drug that Bodin assures us that under its influence a man submitted without consciousness to a painful operation and continued to sleep for several days thereafter.

"Vigo speaks of the whole body being 'brought asleep by the smelling of a sponge wherein opium is,' but warns his readers that the practice is dangerous, because the use of opium is sometimes followed by gangrene. In his work on 'Natural Magic,' Baptista Porta speaks of a volatile drug

kept in leaden vessels, which produced sleep when applied to the nostrils, and Perrin suggested that this may actually have been ether or some other of our modern anæsthetic agents.

“Mental preoccupation was sometimes sought as a means of preventing pain. Richard Wiseman found that soldiers dreaded the loss of a limb much less if it were removed immediately, while they were ‘in the heat of the fight,’ than if the operation were postponed until the next day; ‘wherefore,’ he says, ‘cut it off quickly, while the soldier is heated and in mettle;’ and Renauldin recalls the case of the amiable Dolomieu, who, exposed to the pangs of starvation in a Neapolitan dungeon, measurably alleviated his own distress by engaging in the composition of a treatise on mineralogy, while his unfortunate servant and fellow prisoner, who had not the same intellectual resources, was hungry enough for both.

‘But the presence of pain was not the only evil dreaded by our predecessors in attempting important operations; the great risk of fatal accident from some involuntary movement of the patient was constantly present to the mind of the conscientious surgeon. ‘How often,’ says Dr. Valentin Mott, ‘when operating in some deep, dark wound, along the course of some great vein, with thin walls alternately distended and flaccid with vital current—how often have I dreaded that some unfortunate struggle of the patient would deviate the knife a little from its proper course, and that I, who fain would be the deliverer, should involuntarily become the executioner, seeing my patient perish in my hands by the most appalling form of death! Had he been insensible I should have felt no alarm.

“Coming down to the days more immediately preceding the date of the great discovery, we find that opium and alcohol were the only agents which continued to be regarded as of practical value in diminishing the pain of operations, though the attendant disadvantages of their employment were, of course, recognized. Meanwhile, facts were accumulating, the significance of which we now plainly recognize, but which excited no attention.

“Sir Humphrey Davy, in the early days of the nineteenth century, suggested the use of nitrous oxide gas as an anæsthetic in minor operations, and it was the custom of some of our medical schools—at the University of Pennsylvania, for one—for students to breathe ‘laughing gas,’ as it was then called, for diversion. But yet—and yet—surgeons went on,

in every country, cutting and burning, and patients went on writhing and screaming, until the 16th day of October, in the year 1846, in the Massachusetts General Hospital, Dr. John C. Warren painlessly removed a tumour from a man who had been previously etherized by Dr. William T. G. Morton, and surgical anæsthesia became the priceless heritage of the civilized world."

Scientific American.

AMALGAM AND ITS USES.

By J. E. ADAMS, D.D.S., Paris, Ill.

Amalgam was first introduced into this country for filling teeth in 1833, and since that time unlimited discussion has arisen among the general practitioners of medicine, as well as dentistry, in regard to the practicability of utilizing this material in dentistry. From the very first the better class of practitioners waged war against it on general principles, not alone on account of the supposed deleterious effects of the mercury contained in its composition, but because of its unsightly appearance. In short, it has been charged and credited with defects and qualities which would indicate that it is at once the worst and best material for filling teeth in existence.

It has been and is yet comparatively easy to save well calcified teeth by filling with gold or other material, but the conditions are changing. With these poorly calcified teeth we have to look to their preservation first and asthetic methods and effects afterward. Cements are good, and I would recommend their use extensively in temporary fillings. Gutta-percha is good only in a few positions. Tin, while one of the best tooth preservers we have, has the same objection to it as gold in manner of manipulation and is too soft to wear well.

We have no filling that is practical in every case; it would be just as absurd to fill all teeth with one kind of filling as to treat all diseases with one remedy. The first and most important consideration in selecting material for a particular tooth would be structure of tooth; second, position of tooth and cavity. Gold of all filling materials probably heads the list, but on account of mode and force required in manipulat-

ing I consider it the proper filling to use only in strong, well calcified teeth, and in cavities easy of access.

Amalgam on the other hand is suggested to me for such cavities and teeth as gold is not adapted for—teeth of soft structure and cavities difficult of access. Amalgam is the only plastic metal filling we have ; it is compatible with tooth structure, has comparatively low conducting power, and is easily introduced into cavities. None of the agents used in filling has excited so much discussion ; no material is in more common use, and many cases are presented where such a filling seems the only one practicable. An amalgam that will retain its colour, and not shrink when properly manipulated, is second to no material as a tooth preserver. We have all seen teeth filled with this material that have been effectively preserved from decay for fifteen to twenty-five years, and just as good as when first inserted.

The success of an amalgam filling depends largely upon the way in which it is manipulated ; too much mercury is sure to destroy the setting properties, while some claim that too little favours disintegration of the filling. I feel very sure that the proper way is to work the filling dry, either by squeezing out the excess before filling or wiping out the excess as the operation proceeds. Amalgam has been much abused, for, being so readily prepared and inserted, it has caused a great deal of careless operating, but gold no more carefully used would not make so good a filling. Defective manipulation is one of the most potent causes of failure, whatever material may be used.

The preparation of a cavity for an amalgam filling is distinctly different from almost any other. The walls of most cavities should be straight, the enamel walls parallel and not bevelled, all angles drilled out, and the cavity enlarged within ; while amalgam will permit of more soft tissue in cavity, and defects which would be of no consequence with amalgam are sure to cause failure with gold. Nevertheless, the preparation should be thorough.

No amalgam has yet been produced that will leave a smooth surface after insertion, and too much care cannot be taken in finishing, especially at the gum margin. Yet we so often find overhanging almost enough to fill the cavity proper. The best time for finishing is two or three days after the filling is put in, as then it is hard and will take on a better finish without danger of breaking or crumbling. The mercury used should be the best redistilled ; the success of the filling

depends largely upon this and the thorough mixing. I consider the matrix almost indispensable in all approximal cavities; it makes a difficult cavity simple, and lessens the danger of overhanging walls at the gum border.

Dental Digest.

RELATIONS OF DENTIST AND PATIENT.

By CHAS. S. PRESTON.

The attitude of the dentist toward his patient is a subject which is not given the consideration due such an important factor for a successful dental practice. We are apt to forget sometimes, that the impressions made upon the minds of patients in so many ways aside from our ability to perform good dental operations, have really as much to do with our success as the operations themselves. But considering only our manner and attitude toward the patient, we will find an open field for study. In the first place we will presume, as a matter of course, that we wish to appear to the patient in a manner so natural and genuine that further acquaintance only strengthens, rather than lessens their regard and confidence, and this can only be maintained when it is not assumed for the moment, but is an inbred principle. Sincerity then, is one of the first things to be considered, and its practice faithfully observed. How soon we lose our faith in a man when we see that he is advising us with only a selfish interest. Patients go to their dentist asking what is needed and trusting that he will consider their best interests in his advice. His duty lies plainly before him, and though the temptation may come to step aside from it—especially in the earlier years of practice—he cannot afford to sacrifice the principle for the tempting fee. Aside from the strengthened character which such a course will yield, the confidence of the patient will have been won, as soon as he sees your advice has not been selfishly given. Confidence is the basis of almost all business, and unless we can establish this between ourselves and our patient we cannot expect his patronage. He must feel assured that he is getting our best efforts and that our advice has been conscientiously given. That is what he pays for, and anything else is robbery.

Another point which may well be considered is the conversation with the patient during dental operations. In some instances this does not assume the form of conversation in the general sense, but rather a monologue, the operator doing all the talking and the patient merely listening, particularly after the rubber-dam is adjusted. We should be very sure in such instances that we do not presume too far upon this enforced silence of the patient, and let our conversation become a burden to him. It is better to do the work in silence than to talk continuously, under such conditions, but a little judgment on the part of the operator will regulate this. At all times the conversation should be of such a character as will be interesting to the patient. It will serve a dentist well to be moderately well informed in all the phases of business life, and to keep up-to-date in them so far as possible, so that if his patient be a man whose life and thought have been given to one line of business he can talk intelligently and interestingly with him. Suppose your patient is a farmer, who is interested more in the science of agriculture and stock raising than he is in the base ball rules for the season, or the bicycle tournament in a neighbouring city; and no matter how much these subjects may interest you, he will be much better entertained and will leave your office with a far better opinion of you as an intelligent and interesting man if you are able to converse with him upon the subjects which fill his mind. When we have begun our practice in some community, we will perhaps be tempted to tell some patient of a piece of work we have just finished for another, forgetting that people as a rule are sensitive about having it known that they wear artificial dentures. We may feel very proud that we have fitted a plate for Mrs. Jones, who has a peculiarly shaped arch, and we may unthinkingly tell of our success to Mrs. Smith, who in turn repeats it to her neighbour, and on it goes until it finally reaches Mrs. Jones, and we find when it is too late that our little piece of gossip has cost us the patronage of the aforesaid Jones and her influence with her friends.

There is also a duty which the dentist should not neglect, and that is the education of his patients in the care and preservation of their teeth. It will create in them a higher idea of the value of these organs and the importance of properly caring for them. The good effects of such education in a dental practice will soon be quite evident, and the benefits will be shared by both patient and operator. As a further

result, patients as a rule do not fail to appreciate this instruction, and they will show their appreciation by giving to the dentist a higher grade of work and an influence among their circle of friends which is worth more to him than all the advertising he can do.

Penn. Dental Journal.

THE DIFFERENTIAL DIAGNOSIS OF SWELLINGS ABOUT THE JAWS.

By H. HEADLY HAM, L.D.S. Eng.

It is not my purpose to enter very minutely into their differential diagnosis, but just to notice a few of the more practical standard finger-posts along a somewhat beaten track, and I have taken Mr. F. Colyer's classification right through as being a very lucid and concise one. In all kinds of swelling involving the jaws it is necessary to ascertain whether (1) they are fluid or solid, (2) innocent or malignant.

In those cases involving the antrum the fluid collections generally give rise to a smooth, globular swelling, which generally bulges the facial wall and is particularly noticeable just underneath the malar bone and in the sulcus between the gum and the cheek. On digital pressure the wall gives that peculiar, characteristic, parchment-like crackling. The patient may also give a history of the sensation of a fluid washing in the antrum on making certain movements. If one of the innocent solid tumours it situated in the antrum, all the walls may be affected.

The tumor, growing regularly and enlarging, displaces the walls painlessly, and also the alveolar border, which moves downward in a symmetrical curve; whilst should a malignant tumor exist, it generally affects but one wall, and if that be the alveolar surface, both it and its accompanying teeth are distorted irregularly.

In cases of all malignant tumours the growth is very rapid; as a rule, there is a history, as the case progresses, of severe pain, and there may be of frequent hæmorrhage. The

neighbouring glands become enlarged and the patient becomes very emaciated and cachectic. As it is an important point in the after-treatment to find out the primary seat of the trouble, the following symptoms are worthy of notice :

Either of the solid tumours may give rise to them, according to the wall on which the tumour is pressing.

Pressure on the superior or orbital plate may cause (1) protrusion of the eyeball, (2) amaurosis or blindness, (3) a neuralgia of the eyeball itself, or a severe facial neuralgia.

On the nasal surface, pressure may cause epiphora, or overflow of tears. On the facial surface, the pressure on the anterior dental nerve gives rise to neuralgic pains in the incisor teeth and face, and if the zygomatic surface is receiving the pressure, there is a difficulty in swallowing and breathing.

Having established the existence of a fluid tumour in the antrum, we next have to differentiate in the diagnosis of the causes of the trouble. These may be either a dental cyst, a chronic abscess, a dentigerous cyst, or a cyst of independent formation, such as a degeneration of the mucous glands of the antrum.

A very careful and thorough examination of the teeth should be made. All stumps should be noted, as well as all pulpless teeth, and suspected ones should be thoroughly tested with heat and with cold. Antral trouble nearly always arises from spread of inflammation from some neighbouring part, and pulpless teeth and roots are nearly always responsible for the occurrence of dental cysts and chronic abscesses in the antrum. In diagnosing between these two causes, the signs of inflammatory trouble, such as fistulæ marks, etc., around the diseased tooth, will make chronic abscesses to be suspected, and especially if the patient tells of the variation of its size, or says that it came quickly, and has remained stationary ever since. A slow and steady growth, with the absence of inflammation, points to the existence of a dental cyst.

One cannot be too careful in examining for chronic abscess. Fistulæ are very often established between some old, decayed tooth (generally the first or second molar) and the antrum. There arises then the usual empyema or supuration, and maybe a chronic abscess runs on for years. If the opening of the antrum into the nasal fossa becomes blocked, the pus collects, the abscess swells, becomes active again, and if left alone the pus will work its way through

one of the walls, favouring generally the nasal or facial. This however, is a digression, somewhat. Having established a diagnosis between a dental cyst in connection with some decayed root and a chronic abscess, it is necessary to point out the difference between these and the two remaining cysts likely to be the trouble in the antrum.

If there are no decayed teeth or stumps to be found in the mouth, then the swelling is probably either a dentigerous cyst (or odontocèle) or a cyst of independent formation. If there is an absence of a tooth from the series, with a history of its never having erupted, we may suspect a dentigerous cyst, although the diagnosis is not so easy, should the encysted tooth be a supernumerary one. The differential diagnosis of the innocent tumours in the antrum is very difficult, especially in the early stages. Osteoma takes the longest time to grow, generally occupying about ten years to reach any large size.

Of the malignant tumors (sarcoma and carcinoma), sarcoma generally occurs in the young, whilst tumors occurring in persons over the age of forty, may be of either variety. Sometimes a history of hæmorrhage is given, as sarcoma always has a tendency to bleed. Of the swellings that occur in the gums and alveolar border of the upper jaw, a fibroma, or fibrous epulis, may be mistaken for a simple local hypertrophy of the gum, and a polypus of the gum for a polypus of a pulp in a decayed tooth. The diagnosis is not difficult, as the pedicle of the epulis will be found springing from the periosteum of the tooth and the polypus from the gum.

Of the remaining swellings, the diagnosis generally lies between acute and chronic abscess, dental cyst, and dentigerous cyst. Chronic abscess, when long neglected, often becomes cystic, and abscesses in connection with the incisor teeth may encroach on the nasal cavity or palate, causing extensive destruction of bone, and making a diagnosis more difficult, especially if the teeth are not suspected. Dentigerous cysts are also frequently found located in this position.

The differential diagnosis is practically the same as for the same swellings in the antrum. In all cases the fluid swellings must be diagnosed from the solid ones, which may be innocent or malignant. Fluctuation sometimes can be got to serve as an infallible guide to the fluid tumors, and this especially holds good in the palate, where the fluid tumors may be divided up into acute and chronic abscess, dental cysts and dentigerous cysts.

Of the innocent solid growths, fibroma and osteoma are the most common, and both malignant varieties may be found. The fluid tumors will be diagnosed from the solid fluctuation or by their globular, regular, smooth contour. Abscess in the palate generally arises in connection with a lateral incisor. Dentigerous cysts enclosing supernumerary teeth have also been found, perhaps more often in the palate than elsewhere.

In regard to the solid tumors, a quick growth, the history of severe pain, the enlargement of glands, etc., will point to either sarcoma or carcinoma. Between fibroma and osteoma, the rate of growth may also assist again in the differentiation, as the exotosis is very slow indeed.

The fibroma has a puffy-like feeling under the fingers, whilst the exotosis is very hard. It is nearly always situated at the back of the palate. Of the malignant growths, the sarcoma grows and keeps on growing, whilst the epithelioma, after attaining a certain size, suppurates and breaks down. The diagnosis between the two, however, is not easy at any time, except by microscopical inspection.

In the lower jaw the swellings may or may not involve the body of the bone. Those which are connected with it externally are diagnosed as fluid or solid, according to the presence or absence of fluctuation. If the swelling is a fluid one, it is usually either an acute or chronic abscess, a dental cyst, or a cyst of independent formation, and a differential diagnosis of these may be made by noticing the points described before in connection with the same swellings. The malignant solid growths usually involve the substance of the bone, their origin oftentimes arising therefrom. The innocent growths are fibroma (hardly distinguishable in character from epulis), osteoma, and enchondroma. Enchondroma is not very common here. Osteoma may often be recognised by its position, the usual sites being the angle of the jaw, the inner side of the horizontal ramus close to the canine, and the region of the mental foramen. Its growth history must also not be forgotten. It is more difficult to differentiate the tumors involving the body of the bone. Their growth expands the jaw, the outer plate yielding more readily than the inner.

The fluid growths may be guessed at when the swelling is of a smooth, globular character, and made sure of when the outer plate becomes so thin that the characteristic parchment-like crackling can be felt. In solid growths the expansion

of the bone is not so smooth and regular ; the inner plate is often involved as well as the outer.

The fluid swellings involving the substance of the bone are acute and chronic abscess, dental cyst, dentigerous cyst, and multilocular epithelial cyst. The points of diagnosis between most of these have already been noticed, but both the dentigerous cyst and the epithelial cyst may simulate at times other swellings and troubles, and are differentiated from them with great difficulty.

The walls in a dentigerous cyst may undergo calcification, or it may suppurate ; and if it be deeply situated, it may simulate epithelioma, and half a jaw has been known to have been removed for apparently malignant disease, when the trouble arose from the suppuration of one of the cysts. The passage of a probe through the opening leading to the dentigerous cyst will probably strike the already noticed missing tooth ; but if there is any doubt whatever as to whether it is a malignant growth or not, an incision should be made before any serious operation is performed.

The multilocular epithelial cyst is often lobulated, and may therefore be mistaken for a myeloid sarcoma, but in conjunction with the swelling there will nearly always be an absence of one or more teeth.

The growth of the innocent solid swellings is a very lengthy one, whilst the malignant ones, on the other hand, come very quickly, and are generally nodulated on the surface. The innocent tumours occurring here are usually fibroma, enchondroma, and osteoma, and of the malignant ones, epithelioma and sarcoma.

Endosteal fibroma generally takes the form of a fibrous odontome in the lower jaw, and is one of the commonest forms of growth there. Enchondroma is very slow of growth, and occupies the space between the plates on the sides of the jaw, oftentimes imbedding the teeth. The disease generally arises from the irritation caused by a decayed tooth. A cartilaginous deposit takes place, which may be followed by ossification. Of the malignant growths, the sarcoma usually happens as myeloid sarcoma (one of the forms of epulis), the difference between which and a multilocular epithelial cyst, as already pointed out, is very little.

All malignant growths, especially epithelioma, in the upper jaw, should be carefully diagnosed from necrosis.

Penn Dental Journal,

CONTINUOUS GUM.

By L. P. HASKELL, Chicago.

Continuous gum is, par excellence, the denture of to-day. The strongest, most durable, most natural in appearance, most healthy to the oral tissues, and most cleanly of all full dentures. The matter of weight I do not consider a factor in making an upper denture. If the case be properly made and adjusted in the mouth, the patient does not realize whether it weighs a pennyweight or an ounce. This I can affirm after forty-three years use of the continuous-gum denture.

The impression should always be taken in plaster. No vacuum chambers nor suction devices of any sort are needed. Cases may be made for the flattest ridgeless jaws and the highest vaults. The only change in model, as a rule, is a "relief" over the hard palate of a thin film of wax, extending well on to the anterior ridge and nearly to the posterior margin of the plate, so as to prevent rocking of the plate.

In this work, as in all others, the plate should be worn as high as possible, over the cuspids higher than elsewhere. The margin should always be wired with a flat wire soldered edgewise to the plate, beginning at the right side and soldering an inch at a time, making a *close* joint. This is easily done, using common iron wire for clamps, clamping at two points at first. The posterior margin of the plate should be reinforced with a doubler, one quarter inch wide, guage 30, extending around the tuberosities. The inner margin of the doubler should be turned up a very little, to protect the margin of the porcelain. This turned-up edge should extend only to the top of the ridge, where it is met by the wire of the outer rim. The doubler should be soldered first. The wire should not run across the heel, as it is unsightly and unnecessary. A mere trifle of borax is needed simply to guide the flow of the solder. The solder should always be twenty-four-carat gold.

In arranging the teeth the roots can be cut off when necessary with side-cutting pliers. Little grinding is needed, just sufficient to let the tooth rest on the plate.

Invest in plaster and asbestos, equal parts, first applying a thin coat of plaster to the teeth, filling the interstices. After removing the wax make patterns of lead (Japan tea lead is the best) in three sections, one covering the anterior teeth

and the others the posterior, but lapping over the cuspids, so when soldered it is a continuous backing, firmly anchoring the teeth to the plate. There should be a foot-piece to the backings about one-eighth inch wide, lying flat on the plate. The backings may be the same thickness as the plate. By slitting the foot-piece several times it can be more easily adjusted. For pressing the backing into place I use a worn-out rubber scraper. Use very thin twenty-four-carat gold for solder, cut in pieces three-sixteenths inch square, picking it up with a sharp-pointed instrument. No borax is needed, as the gold is laid under the foot-piece and under the pins, which are bent down close to the backing.

When using a coke or oil furnace I soldered in the furnace. Since using the electric furnace I heat the case as hot as possible over a gas heater, then solder with compressed air or an automatic blow-pipe. When cold, remove the investment after soaking; wash thoroughly; no soap or alcohol is needed.

I use the Close materials for body and enamel exclusively, as they are thoroughly reliable. The first application should be made very wet, so as to be easily worked into all the interstices around and under the teeth back of the backings, jarring with the spatula, and absorbing with a cloth all excess of moisture. Absorb with the cloth most of the moisture from the material in the dish and apply with the spatula (which is straight and pointed at one end, curved and pointed at the other, and the only steel instrument needed), holding the case upside down. The material should be packed hard, building up to the full contour, always fullest over the cuspids; jar with the spatula to bring excess of moisture to the surface, and absorb; then dry partially over the Bunsen burner or spirit-lamp. For trimming and contouring nothing equals a quill toothpick, thin and flexible, which trims around the necks of the teeth and removes all material from between. With a stiff, dry brush remove all chips, and with a small, soft camel's-hair pencil, wetting for each tooth, deftly draw it around the neck of each tooth.

With the curved end of the spatula apply the material to the palatal surface, packing thoroughly around the necks of the teeth, and a very thin coating over the surface, jarring, absorbing, drying, and trimming. Here taste can be exercised in making the lingual necks of the bicuspid and molars longer than the teeth represented, and also convexing the surfaces of the bicuspid to correspond with nature. This

first application should be as complete as if it were the last, as the material shrinks and the shrinkage should be complete at this baking.

The introduction of the Custer electric oven has simplified this work very much. The case is placed in the furnace without drying and the heat turned on slowly. This should not be a full bake (glossy), but only a strong glaze. The case should always be placed on the plaster cast after soldering, and also after the first bake, to see if it has sprung; if so, press it back into place. There is no liability of springing in the last bake. When cool, wet the case thoroughly and apply material very wet, jarring thoroughly to fill the crevices; then with denser material replace the shrinkage, form the rugæ, finish as at first, and bake this time to a gloss.

Upon cooling, apply the gum enamel, of a consistency to be applied with the spatula, about one thirty-second inch in thickness and uniform; jar slightly and absorb; dry partially and trim with the wet brush around the necks of the teeth. The palatal surface needs a thinner coat than the labial. Bake to a *gloss*. The case can always be placed in a cold muffle to cool. Finish with files, fine sandpaper, small felt wheels with pumice and oil, and finally soft brush and whiting or rouge.

A lower plate should be doubled around the margin one-eighth inch wide and no wiring, allowing the porcelain to come flush with the edge. The reason for this is the liability of needed relief at the margins sooner or later: the case would not *appear* marred, as it would if ground or filed through a wire.

Many have given up the use of continuous-gum work on account of the difficulty they had in repairing. If properly proceeded with this is a simple matter. The case must first be imbedded in plaster and asbestos one-half inch deep, heated very slowly to a red heat. When cool, and the investment removed, there is no danger of cracking. Then grind out the remains of tooth to be replaced and a portion of the gum. Select a tooth or teeth (rubber teeth are suitable for repair). No soldering is needed. If only one tooth, pack some material (lower fusing than the original) around it and carefully place in the furnace; bring up the heat gradually to a good glaze. After cooling apply the enamel. If several teeth are replaced, hold them in place with a light coat of plaster and asbestos over the ends or half way down and extending on to the adjoining teeth. If only the corner of a tooth is broken off, repair with the easily fusing material. If there are cracks in the enamel, grind into them and fill with body. *Dental Cosmos*.

SOME NOTES ON THE PREPARATION OF
CAVITIES.

By S. H. GUILFORD, D.D.S., Ph. D.

The success or failure of a filling is probably more largely predetermined by the manner in which a cavity is prepared than by any subsequent part of the procedure.

The three essential considerations are:

(1) Gaining proper access to the cavity.
(2) Excavating the cavity and giving it the proper retentive form.

(3) Proper shaping and treatment of the cavity margins.

Most beginners and inexperienced operators are apt to make the fatal mistake of giving themselves too little space in which to operate to advantage.

On the exposed surfaces of the teeth, that is, all except the approximal ones, we have an abundance of room in which to operate, but on the obscure or approximal surfaces there is usually little or no space provided for our accommodation. We must, therefore, create such space as we need as best we can. Fortunately for us, the enveloping membrane of the root of a tooth is capable of considerable compression, and we are thus enabled to press the teeth apart sufficiently for our purpose.

By the employment of different means we can separate them slowly by *gradual* pressure or more quickly by the *immediate* application of force. Sometimes the former plan is better, sometimes the latter, and very frequently a combination of the two is the most desirable.

Elastic rubber wedges are perhaps most generally employed and are very efficacious, but the rapidity with which they operate causes such irritation of the nerve filaments in the pericementum as to be productive of great tenderness or pain. This may largely be avoided by giving more time to the operation and proceeding more gradually.

A very thin piece of rubber introduced at first and gradually followed by others very little larger, will very much lessen the discomfort of the operation.

Where the teeth are very close together and firmly set, a single thickness of dam rubber will start them in their movement, and if this be followed on the first or second succeeding day by a double thickness of the same, and this in turn

by a section of small rubber tubing, we will accomplish our object with the minimum of discomfort to the patient.

A better and more comfortable method, however, is to start the separation with thin rubber, and follow this with wooden wedges or slices of cork. The latter operate less quickly, and consequently produce less pain.

Cork is an especially good substance to use for the second stage of separating, because it can be introduced without much effort, adapts itself to the adjoining surfaces and has a clinging quality which prevents it from slipping out of position. Teeth rarely become tender when it is employed.

Cotton separates slowly and is almost painless in its operation. It can be packed tightly between the teeth at their contact points, and if a ligature be then passed through the interdental space above it and tied around below it, it will be still further compressed. If the teeth are kept dry, while this is being done, and the cotton then touched with a little sandarac varnish, and it allowed to dry, the cotton pledget will rarely remove from its position.

Narrow linen or cotton tape is a most excellent separator, although not a rapid one. It has the advantage of being both inconspicuous and painless in its operation.

By introducing one fold the first day, two the second, and so on, all needed space can be comfortably gained. Patients can be readily instructed in its use, and thereafter perform the operation themselves.

Immediate separation is accomplished by means of some form of mechanical separator.

Of those now in use the simplest is the Elliott separator. It is quickly applied and operated, and is intended to be used between any of the teeth, but it is so liable to slip or turn in its position that it is often unsatisfactory. In cases of irregular or overlapping teeth, however, it frequently serves us better than any other.

The ivory double-bow separator is more generally serviceable than the Elliott, but its bows are so large that they are often in the way and troublesome.

By far the best instrument of this kind in use to-day is the Perry separator. It is small, compact, neat and powerful. It is constructed that it cannot change its position when once in place, and is never in the operator's way. It comes in six sizes and forms, and on this account is expensive, but this objection may largely be overcome by buying one at a time.

The writer began by buying first the one for the incisor

teeth, then the one for the bicuspid, and after that the one for the space between bicuspid and molar. Other sizes and forms were added later.

Any mechanical separator, if operated quickly, will cause pain, but by giving the screws slight turns at intervals of several minutes, and not hurrying the operation, nearly all pain can be avoided. A good plan is to start the separation with rubber or cotton beforehand and finish with the separator at time of filling.

Children's teeth move so readily that all needed space can be gained by the separator at one sitting, thus doing away with the annoyance of slow wedging.

When teeth present for filling that have been separated by wedging, and have not recovered from the soreness, the application of the separator will give immediate and positive relief by holding them firm during subsequent operations. It is the jarring of the tender tooth that causes pain. When it is firmly held by the separator there is no movement, and consequently no pain. With suitable space thus gained we are ready for the next stage of the procedure.

Excavating and Shaping the Cavity.—Most cavities that are small and reasonably accessible can be readily opened with a pointed fissure bar. Being pointed and round, it easily enters a fissure or small cavity, and evenly opens and enlarges it. This accomplished, the decay may be removed and the cavity shaped by means of round or oval burs or excavators of proper form.

A bur with sharp angles like the "inverted cone" or "wheel," should not be used on the inside of the cavity on account of the angular grooves that it produces.

The same is true of excavators with sharp angles.

The spoon excavator, in its various forms, is most suitable for removing decay and shaping the cavity.

In giving to the cavity a retentive form, deep undercuts or grooves should be avoided, as they may weaken the walls and are hard to fill properly. This is especially true of the cervical walls of approximal cavities.

Any grooving for retentive purposes should be shallow and confined to the dentine. In the enamel, or even very near it, they should not be made. In any case it is better to have the whole cavity of such form (slightly larger within than at the orifice) as to retain the filling, than to depend upon grooves or undercuts at certain points.

Shallow pits or grooves for starting the filling are often

helpful, but they should be gradually abandoned as one becomes more skilful in operating.

In a compound approximal cavity, involving any portion of the occlusal surface, we can generally take advantage of a natural fissure or pit for the final anchorage of the filling. This will obviate any necessity for grooves or undercuts in the lateral walls, especially where a matrix is employed to support the filling until the occlusal surface is reached. In cavities where the depth is greater than the diameter, no internal enlargement is required, for the resistance offered by the cavity walls will keep the filling securely in place.

Cavities of this form are often found in the basilar pits of the superior incisors and on the buccal surfaces of the inferior molars.

The Stomatologist.

METHOD OF TREATING PULPLESS TEETH.*

By Dr. H. C. GILCHRIST, Nyack, N. Y.

My method of treating dead teeth has been very successful during fifteen years of practice. Where there is a great amount of inflammation and swelling, the suppurative stage approaching, I first open the pulp-chamber to release the confined gases. I then cut a small disk from blotting paper, about three-eighths of an inch in diameter, which I saturate with chloroform and apply directly over the root of the diseased tooth, covering the same with a little larger disk of rubber-dam to protect the lips or cheek from being blistered. Two or three of these applications will in a few moments produce a small blister and soften the gum tissue. I then paint the parts thoroughly with iodine and aconite, equal parts, and, giving some capsicum plasters to use over the affected part, I dismiss my patient until the following day. In the majority of cases when the patient returns I find that the abscess is discharging through the gum where I produced my blister with the chloroform disk, and that the inflammation has somewhat subsided. If not discharging, it is ready to be lanced. I then cleanse the canals with Donaldson broaches, wash out thoroughly with water, as hot as the patient can bear, following with bichloride of mercury

* Read at Second District Society, October, 1896.

(1-10,000). Then, making a piston of a broach wrapped with cotton, I carefully force beechwood creosote through the canal until it appears upon the gum. In very obstinate cases I use chloride of zinc, ten grains to the ounce. I then place in the canals a dressing of cotton saturated with the following preparation. One-half ounce iodoform ; creosote of sufficient quantity to make a thin paste, to which add half dram of oil of cinnamon, which, while acting as a germicide, also disguises the odour of the iodoform. This combination has given me more satisfaction than any that I have ever used. It is very rare that it is necessary to make more than the second application to effect a cure.

If the tooth is in a quiescent state when I begin I open the pulp-chamber and, after thoroughly cleaning out the canals, wash them with hot water and bichloride of mercury, then pack the canals with cotton saturated with spirits of camphor, leaving it in for twenty-four hours. When the patient returns I pursue the same treatment with my iodoform preparation as before mentioned.

When the tooth is ready for filling I adjust the rubber-dam, wash out the canals with alcohol, and follow with chloroform, which I evaporate with hot air. If I have found it necessary to drill through the foramen I fill the canals with gutta-percha point dipped in chloro-percha, which I force in with a warm instrument ; otherwise I use my preparation of iodoform, mixed in a thin paste of phosphate of zinc, to which I add a few shreds of cotton, which can be readily forced up to the end of the root.

Once in a while I meet an obstinate case where some constitutional disturbance causes a great deal of trouble, but with perseverance it can usually be conquered. Recently, when there has been a great deal of pain, I have prescribed ammonol in ten grain doses, with satisfactory results. But I must confess that I have met a few cases where all the prescribed methods have failed. In these I extract the tooth, excise the end of the root, wash out the socket with bichloride of mercury, and after filling the canal with gutta-percha, return the tooth to its former position, tying it fast to the adjoining teeth. The first tooth that I treated in this way a superior central incisor. That was fifteen years ago, and it is still in the mouth, doing good service. Since then I have treated a number in the same way with good success, they being limited to incisors, canines and bicuspid.

Items of Interest.

VULCANITE v. GOLD-CLASPS.

By Dr. C. JUNG, of the Heidelberg University.

The fact that vulcanite clasps are productive of ring-like caries has attracted attention as to the real cause of this disturbance, and the further determination of why like injurious results do not come from the use of metallic clasps. There is to some extent caries resulting from gold-clasps, but it is not of so destructive a character. The decay does not begin so early, nor is it so intense, and the disturbance is more of a mechanical than of a chemical nature.

The exact cause for this difference in caries coming from both vulcanite and metallic clasps has not as yet been fully explained. In the past it has been contended that in the employment of metallic clasps there is ever a small space between the clasp and the natural tooth, no matter how carefully the clasp has been adjusted, and in consequence there is formed a favourable place for lodgment and dislodgment of food—acting as self-cleansing; while with the tight-fitting vulcanite clasp the food once in the minute interspace, all conditions are favourable for disintegration and fermentation. And further, the food is less likely to stick to the smooth surface of the gold clasp than to the rough and porous sides of a vulcanite clasp.

Both of the foregoing theories must be discarded as not fully answering the query, since the difference between a correctly fitting metallic clasp and a carefully constructed vulcanite one is so very slight as not to seriously enter into the problem; and further, the rapid decay is not avoided when the contact surface of the vulcanite clasp is perfectly smooth and polished, so that we must seek further if we hope to arrive at the truth.

That the metals, and especially the royal metals, antagonize the workings of the lower forms of life, and that they materially limit their growth, are facts well established, yet the real cause of this circumscribing influence of silver, etc., has not yet been clearly demonstrated. But it appears that a metallic salt of antiseptic powers is the direct result of the culture media, and that this salt resulting from the presence of lactic acid is self-limiting to the bacterial product, and hence restricting to the activity of the bacteria.

The most recent investigations of the eminent Dr. Crede, of Dresden, demonstrate that some of the lower forms of life under certain conditions produce acid products which, when brought in contact with silver or gold, are sufficiently strong to affect the metal and produce a metallic salt. If these deductions are correct, and we have no reason to doubt them, then we in a measure begin to understand why metallic clasps produce less harm than the vulcanite ones. In the future we will place a thin strip of gold on the contact surface of the rubber, and so produce a vulcanite clasp with a metallic lining. I have suggested this as an article intended to awaken investigation in this direction, and if it accomplishes this the purpose has been fulfilled.

Translated by Dr. B. J. Cigrand, from

Journal fuer Zahnheilkunde, January, 1897.

CATAPHORETIC EXTIRPATION OF LIVING PULPS.

By VINCENT M. MURR, D.D.S., New York.

When I make the statement that the most sensitive patients will allow you to perform any operation on their teeth you may deem necessary by using cataphoresis, I speak from practical experience, as the following incidents of office practice will show.

Mr Y. presented himself at my office for treatment, and upon examination of his mouth, I found several badly decayed teeth. Taking the right upper first bicuspid, which was extremely sensitive, I applied the rubber and made ready the volt-selector. For the negative pole, or electrode, I used the sponge dipped in warm water containing 20 per cent. salt. The positive pole, or electrode, was a platinum pin bent into suitable shape, and laid on a pellet of cotton saturated with a 20 per cent. aqueous solution of cocaine containing one or two drops of Calvert's carbolic acid, which has proven very satisfactory, as it preserves the solution for weeks, yea, for months, if in a brown bottle and tightly corked.

As my patient was very nervous, it required thirty-five minutes to reach ten volts. Holding it there for twenty

minutes, I was able to extract the living pulp without pain to the patient.

Another patient was a young woman about twenty-two years of age, with the pulp aching, in the right lower twelfth year molar the cavity being in the anterior approximal surface. After preparing in the usual way, I was twenty minutes in reaching eight volts. After fifteen minutes I was able to extract all but a small portion of the pulp from the anterior canal. I renewed the application, and in twelve minutes was able to remove the remainder of pulp.

Those of us who have been using cataphoresis seem to get the same results, but with varying amounts of electricity. I have never been able to reach fifteen volts, my average having been five and one-half volts, but as I obtain satisfactory results, I am led to believe that some dentists are pushing the voltage too far.

In my experience cataphoresis has proven successful in every case. The time required is longer, but I charge more, and the patients seem to be willing to pay more. So, both are benefited. The patient has the work done without pain, and the dentist receives a larger fee.

American Journal of Dental Science.

INTERNAL CARIES.

By J. H. BLAND, D.D.S., Pueblo, Colo.

About six months ago a lady called upon me, suffering intense pain, which she located in the region of the left superior cuspid. I made a thorough examination, but could find no cavity in the cuspid, and as all of her other teeth appeared to be perfectly sound, I diagnosed the pain as of neuralgic origin and advised a consultation with her physician. He failed to give her any relief, and she returned to me for another examination, which, however, was made without throwing any light upon the mystery. Two months later she again returned, having suffered continuously in the interval, but having at last discovered a rough place upon the suspected cuspid. Upon examination I then detected the most minute cavity at the extreme point of the cutting edge, and upon enlarging was amazed to find the dentine so soft

that it could be removed with a spoon excavator. I further enlarged the opening, and eventually removed all of the dentine to a line well below the gum margin. A curious factor in the case, which accounts for the continuous pain, was that the pulp had receded as rapidly as the caries had progressed, and was still alive when all decay had been removed.

The Dental Digest.

A GOOD PRESCRIPTION.

When you have laboured and perspired over the tiresome and seemingly insurmountable difficulties attending some difficult dental operation, and your hands and brain are "fagged" out—a good prescription is to discharge the patient and try again at another sitting. A good night's rest following attendance at the theatre will have given you new capabilities to overcome difficulties, and on the morrow you will be able to bring to a successful conclusion some work which the day before seemed impossible. Try this prescription.

Western Dental Journal.

WHY DO SO MANY AMALGAM FILLINGS FAIL?

By G. E. HANNA, L.D.S., Ottawa, Ont.

It is not the intention to enter into any so-called scientific solution of this question. I propose briefly to state the conclusions arrived at from years of observation of amalgam fillings inserted by others as well as by myself.

I am convinced all cases of recurring caries which may be properly called failures are due to two general causes—bad amalgam and defective preparation of cavities. Bad amalgams may result from improper proportions of desirable metals, or from the introduction of some objectionable element in the alloy, or a good alloy may be spoiled in the amalgamation by leaving too much mercury, or by using

impure mercury, or by allowing the amalgam to partially set before using.

Amalgams made from improper alloys shrink or swell in the setting—setting according to the excess of either metal—in either case making a defective operation. Fillings made from amalgams too soft, or partially set, lack the so-called “edge” strength, and have not the resistance necessary in grinding surfaces. The alleged “balling” or “spheroiding,” of amalgam fillings I have not observed. Defective preparation of cavities is undoubtedly responsible for the greater number of failures. Without implying censure on my professional brothers, or admitting fault on my own part, I make the statement that three-fourths of all amalgam fillings in approximal cavities have been placed on imperfectly excavated or defectively formed cervical walls. The disposition to avoid “hurting” the sensitive and timid, is a barrier few of us have the moral courage to surmount, and a still smaller number can afford to disregard the protests of such patients. The most thorough and conscientious graduate soon learns in practice, that having to renew his fillings at unreasonably short intervals, does not have such dispelling effects on his clientele as the reputation of being “rough and harsh,” as it is generally termed.

There are, however, defects in cavity preparation which none of us are justified in overlooking, viz., the proper trimming and bevelling of ragged enamel borders in all cavities, and the thorough excavation of underlying carious matter, where it is not desirable to cut away projecting enamel on grinding surfaces and in buccal cavities.

My estimation of amalgam as a filling material may be stated by saying, if a good article be used in the same locations, under similar conditions and with equal exactness required in the use of gold, we find it no mean competitor with the fellow-metal in arresting the progress of dental caries.

Dominion Dental Journal.

AN ANTIDOTE TO CARBOLIC ACID.—Vinegar is an antidote to carbolic acid. When applied to the injured surface it causes rapid disappearance of the characteristic whiteness, as well as of the anæsthesia, and prevents the formation of a slough.

Professor Carleton, in Semaine Medicale.

A LARGE MOUTH CONCRETION.

Mrs. G—, aged 32, consulted me in September, 1896, for a large growth of long standing, which filled the right buccal cavity and had caused ulceration through the upper lip and great deformity of face. At the age of 12 years she suffered from "fever" that lasted considerable time, followed by a slow convalescence, during which the teeth in the right side of the lower jaw became loose and dropped out one by one, but without any pain or ulceration of the gums. In about six months she began to notice a "shell-like" mass on the gums from which the teeth had fallen, apparently in the area occupied by the molars. For ten years this growth was gradual and gave little trouble; then deformity began and increased steadily, but it was only within a year that marked increase in the size of the mass and troublesome symptoms developed. The growth filled the whole right cheek and produced great fattening of the right side of the face and the right nostril; had ulcerated through the upper lip at one point, and the whole lip was greatly swollen. The point which presented at the angle of the mouth was evidently cancerous, but I mistook this for a simple coating. The fœtor was horrible and the mouth so sensitive that manipulation was impossible. I looked upon it as a growth from the upper alveolar border, probably originally of the nature of epulis, but having recently (coincidentally with the history of rapid increase in growth and symptoms) become malignant; so advised the removal of the upper jaw. She went home, but returned October 12th, and prepared for operation on the 19th. When fully anæsthetised I was able for the first time to make a critical examination, and then found to my surprise that the mass consisted simply of a large concretion the size of a large hen's egg, lying free in the mouth, having formed a cavity for itself by displacement of the soft parts and absorption of the alveolar border of the lower jaw. It was so large that I removed it with considerable difficulty. A couple of teeth were embedded in its lower border, and it was clearly an enormous growth of "tartar." The ulceration of the lip healed rapidly, and the patient was discharged in a week quite well, except for the deformity which had occurred during the growth of the mass. The mass, which was oval in shape, measured 13·5 centimetres in its greatest circumference, and 11 centimetres in its smallest circumference.—JAMES BELL, in *Montreal Medical Journal*.

INFLUENCE OF CONSTITUTIONAL DISTURBANCES UPON THE TEETH.

At a recent meeting of the Berlin Society for Internal Medicine, Neumann discussed the influence exerted by constitutional diseases upon the state of the teeth. He pointed out that rachitic erosions occur symmetrically upon different teeth at varying levels through interference with the process of calcification. The deciduous teeth may also be eroded, but only at the same places as the permanent teeth. The erosions may in some instances begin before birth, but as a rule they take place during the first five months of life. The morbid process on which they depend terminates in 54 per cent of cases in the second half of the first year of life, in 38 per cent in the second year, and in 6 per cent at a later period. Many theories have been invoked to explain these erosions, but none are adequate. The lesions occur as the result of a morbid process continuing at least for several months and frequently longer. They bear no relation to syphilis and are dependent exclusively upon rachitis, and upon that special form involving the bones of the head. They are exceedingly common, being found on the permanent teeth in 18 per cent of children and on the teeth of 54 per cent of children dying during the second half of the first year of life. The teeth peculiar to hereditary syphilis differ from rachitic teeth in the disease not being local, but consisting in a malformation of the entire tooth. The impression that only the upper median incisors are effected is not correct. Such teeth are characterized by standing far apart, by being rotated on their axes, by standing in divergent relations with each other and by malformation of the crown. They are not common. The malformation occurs between the seventh month of foetal life and from the third to the fifth month of extra-uterine existence. It does not involve the deciduous teeth, because the rudiments of these are formed at a time when syphilis of the fetus usually results in abortion. The common form of caries begins on the incisor and gradually invades the surface of the entire tooth. It bears no relation to rachitis. It reaches its maximum of development during the second year. It is often observed in connection with chronic disease of the nervous system, especially idiocy. Circular caries is characterized by early discolouration of the teeth at the gingival margin. Caries of

the neck takes place and progresses deeply until the distal extremity of the tooth is cut off, leaving an unrecognizable root. It occurs in connection with grave disease, especially tuberculosis, of which it is diagnostic.

Berliner kl. Wochenschrift, Jan. 1897.

EMPYEMA OF THE ANTRUM OF HIGHMORE.

By EDWARD E. GIBBONS, M.D.

Chief of Clinic to the Professor of Eye and Ear Diseases,
Maryland University Hospital, Baltimore.

On the 22nd of June, 1896, A. S., white male, æt. 19, came to me with the following history: That about one year and a half ago he had suffered with severe pain in and about the left second superior molar tooth. The pain continued two days, accompanied by a considerable swelling of the left side of the face, at which time he consulted a dentist, who finding the tooth carious, drew it, which gave great relief. About one week afterward the patient said he noticed a small, round and very painful swelling beneath the left eye. He immediately consulted his physician, who incised the lump, giving exit to a quantity of pus. From that time until I saw him he had a sinus below his left eye, the external orifice corresponding to the inferior margin of the orbit, from which pus would gush every time he blew his nose. The sinus, examined with a probe, was found to run backward along the floor of the orbit about one quarter of an inch. The lower eyelid had been engaged in the cicatrix at the mouth of the sinus and pulled down, producing a very unsightly ectropion. The patient had a very decided deflection of his nasal septum to the left side, which interfered with intra-nasal inspection, but, a greatly hypertrophied middle turbinate was seen, occluding the ostium maxillare prohibiting the natural drainage of the antrum through the nose. The history of the case, and my inability to illuminate the eye on the corresponding side, after Davidson's method, as well as the antrum itself, made the diagnosis.

Five days later I perforated the antrum, with a Pope's antrum trephine, through the alveolus of the second molar.

The pus which came was very fetid. A soft rubber drainage tube with a flange was introduced, and the end occluded with a stopper to prevent the constant trickling of pus into the patient's mouth, and entrance of food into the cavity. This tube gave the patient absolutely no inconvenience as the flanged end fitted snugly up to the gum. Examination of the cavity with probe and mirror failed to detect the presence of any necrosed bone or growth.

When the cavity was washed out the solution came freely from the sinus below the orbit. The hypertrophied middle turbinated body was cauterized and the cavity washed out with a solution of permanganate of potash. Two irrigations sufficed to destroy the odor. The cavity was then daily washed out with hydrogen dioxide diluted one-half, and finally in full strength. After about two months the suppuration ceased, and is absent at the present time. The eyelid was released by dividing several bands of connective tissue, by which it was held down, and the ectropion relieved.

A few words about the etiology of these cases. The sinus maxillaris is especially liable to infection from one of two sources ; from a diseased tooth, or from the nose. Authorities do not agree as to the most common mode of infection. Kuchenbecker found, out of 31 cases, 33 per cent. the result of dental caries, 22 per cent. of general diseases, 10 per cent. of tumours, 22 per cent. of unknown causes, while only 13 per cent. could be traced to intra-nasal origin.

The operative treatment of those cases consists in making an opening into the cavity and washing it out daily, until all suppuration has ceased. The older surgeons, says Diffenbach in his "System of Surgery," gave more space to this operation than they did to resection of the jaw. Among the earliest methods of opening the antrum was that of Malinetti, who opened it, in 1675, by making a crucial incision in the cheek and perforating the cavity through the canine fossa. This operation did not find many followers. Our present methods date from the latter part of the last century. About that time Cooper opened the antrum through the mouth, by extracting a tooth and entering through the empty alveolus. If there is a carious molar tooth present, it should be extracted. If the cavity is not opened by this method a strong trocar will easily establish communication. It is far safer, however, to use a drill or trephine. If the teeth are all sound we may then open the sinus through the nose. Hunter opened the cavity through the infundibulum, but drainage

was not good, as the point selected was too high up, and there is also great danger of wounding the floor of the orbit. The inferior meatus is the site usually selected for opening the cavity when the trouble is intra-nasal in origin. It can be done with a strong trocar or electric drill. This operation is contra-indicated if decided stenoses of the nasal chambers exist.

University of Maryland Bulletin.

MAKING DIES FOR CROWNS.

By W. B. FAHNESTOCK, D.D.S., Cincinnati, O.

In making dies for crowns it is often difficult to obtain a die and counter-die of Mellotte's metal, because the surface of the cold die, especially the cusps or any small prominent part of the male die, is very liable to fuse when the melted metal for the female die is poured upon it. This happens even when the male die has been well carbonized and is kept cold by standing upon a piece of ice while the melted metal is being poured, and the latter is made only hot enough to barely flow. Having used the utmost care in doing this, I find it impossible to separate the dies when cold without breaking.

To overcome this difficulty completely I burnish a piece of tin-foil over the male die, and leaving this upon same pour the metal for the female die upon it. When cold the two dies will fall apart, and if the foil has been well adapted to the male die the female die will be sharp and as good for all practical purposes as if it had been poured directly upon the male die. The tin-foil prevents the surface of the male die from fusing, providing it be cold before the female die is poured upon it.

My observation may not be new, but I have never heard of it before, and found it out only after much difficulty with other methods in popular use.

Dental Digest.

CAMPHO-PHENIQUE, confined under a temporary filling for a few days, is a valuable application for sensitive dentine.

TOXEMIA DURING COCAIN CATAPHORESIS.

By Dr. HENRY J. MOORE, Frankfort, Germany.

As many dentists seem to doubt the possibility of getting the toxic effects of cocain by the method of cataphoresis, it may be interesting to place on record a recent experience of mine. I had occasion, in the mouth of a young man, to crown an upper lateral which had been broken by an accident. As I had to destroy the pulp, I applied arsenic and removed it within a few hours, using cocain with the electric current. I was compelled to apply the cocain higher and higher up in the canals in order to complete the operation with perfect anæsthesia. At the end of twenty minutes I noticed that the pupils of my patient's eyes were much dilated. I was working by gas-light and consequently did not observe any difference in his colour. I asked him whether he felt all right, and he replied that he noticed an increasing sense of discomfort and was feeling very faint. I fortunately had no difficulty in restoring him by administering several strong doses of whisky, and was enabled to complete the operation. I had not used much cocain and had not applied it continuously. It has always seemed to me that the quantity used is no criterion, as one subject will support much less than another.

I subsequently discovered that in this particular case the foramen was abnormally large, thus allowing the more ready passage of the current and of the cocain.

Items of Interest.

The dental profession is more prolific in writers than almost any other profession. We have more good writers among us in proportion to our numbers, than the medical profession has. Legal writers, lawyers, are comparatively few. That is, the literary work in the legal profession is done by but very few men; in the medical profession, the proportion of writers is such that our profession need not be ashamed at any time to stand alongside of any of the professions and compare its writers of ability.

Dental Review.

Dental News.

ROYAL COLLEGE OF SURGEONS, EDINBURGH.

During the July examinations the following gentlemen passed the First Professional examination for the Licence in Dental Surgery:—

William Gerard Morgan, Edinburgh, (with distinction); Campbell Hossack Baxter, Grimsby, (with distinction); Charles Smart, Musselburgh; Charles Frederick Turnbull, Sunderland; George Reginald Brittan, Plymouth; Alexander Campbell, Alexandria, N.B.; Alfred Ebenezer Park, Edinburgh; and Adam Currie Reekie, Edinburgh; and the following gentlemen passed the Final Examination, and were admitted L.D.S. Edinburgh:—James Coltman, Newcastle-on-Tyne, (with distinction); John Norman Macdonald, Lincoln; John Thomson Kilpatrick Thompson, Glasgow; George Albert Lloyd, Denbighshire; Thomas Percy Wolster Watt, Ceylon; Arthur Capper, Huyton, Liverpool; Alexander Meo, Edinburgh; George Braidwood Wilson, Liverpool; Charles Nelson Park, Campbeltown; and Sydney Joseph Smith, East Preston.

EPITHELIOMA OF THE LOWER LIP IN A VERY EARLY STAGE, ATTENDED WITH GLANDULAR INFECTION.

An man, æt. 64, presented a small abrasion about the size of a hemp seed on the prolabium of the left lower lip, but attended with much more extensive induration of the lip which could be distinctly felt. At the angle of the jaw the glands formed a hard mass adherent to the bone. The history was that the sore commenced ten months ago from irritation of a pipe, and got better for a time, and then relapsed. The family history was entirely negative as to growths of any kind. Mr. Hutchinson remarked on the insignificant appearance of the primary growth in this case, from which alone

very few would even suspect cancer. He had never seen anything so small produce infection of glands. The temporary improvement which malignant growths often underwent, as exemplified here, was one of their most deceptive features. Its non-recognition was a source of grave error in diagnosis and loss of valuable time. As an example of this, he had known a case of melanotic sarcoma almost heal under black wash, which was the treatment recommended by a distinguished surgeon.

Medical Press.

MEDIÆVAL DENTISTRY.

A recent case in which a plaintiff obtained damages from a firm of dentists deserves some attention from those responsible for the well ordering of the dental profession. From the evidence it appeared that the member of the firm who attended plaintiff was not a registered dentist. He practised as a barber, as well as a dentist, and in the pursuit of the latter avocation destroyed the nerve of plaintiff's tooth with a red hot iron. That proceeding was characterised by an expert witness, a Fellow of the Dental Society, as perhaps admissible 150 years ago. Surely it is time that this class of unregistered dental practitioner were stamped out. We fail to see why the stringent rules that apply to medical practitioners, as regards working with unqualified men, should not be enforced in the case of the dental profession. Here we find a qualified dentist actually in partnership with an unqualified man. There is no apparent surface reason why the holder of a dentist diploma should be allowed to employ unqualified assistants, at any rate, so far as concerns operative work. What has the General Medical Council to say to this case?

Medical Press.

A DENTIST'S EXEMPTION.

At a meeting of the Maldon (Essex) Town Council, the Town Clerk reported that Mr. T. P. Pechey, who was appointed an overseer of the parish of St. Peter, claimed exemption on the ground that he was a dentist. This was allowed, and someone else appointed in his place.

APPOINTMENT.

J. D. Ross-Watt, L.D.S. Edin., L.R.C.P. and S. Edin., to be Hon. Dental Surgeon to the Frere Hospital, East London, Cape Colony, South Africa.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester during the month of JULY, 1897.

Number of Patients attended	853
Number of Extractions	537
Number of Extractions under Anæsthetics	331
Gold Stoppings	92
Other Stoppings	97
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	60
Gold and Porcelain Crowns	17
Inlays	1
Total	1988

OSWALD TIDSWELL, *House Dental Surgeon.*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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VOL. XL

AN ACCOUNT OF THE SURGICAL COMPLICATIONS THAT MAY ARISE FROM A CARIOUS LOWER MOLAR, AND THEIR TREATMENT.*

By F. J. PADGETT, L.D.S. Eng.

The complications arising from a carious lower molar may be divided into four classes. Firstly, we may have Irritation of the Pulp, Pulpitis, Necrosis of the Tooth, Exostosis and Inostosis. Broadly speaking these may be considered surgical, but strictly speaking they are dental complications. I shall therefore ignore them. Secondly, we may have Tic douloureux and other Neuralgic troubles, Epilepsy and convulsive seizures, Otagia, and disordered muscular action of reflex origin, etc. These are medical complications, and must be laid aside. Thirdly, we may have the following surgical complications: Periodontitis, Alveolar Abscess and Dental Fistula, Lymphadenitis, Tonsillitis, Cellutitis and Œdema of Glottis, Septicæmia and Pyæmia, Tumours, Cysts, Necrosis of the Jaw, and Trismus. Fourthly, we may have some diseases which are decidedly surgical, but inasmuch as they are due to mechanical irritation rather than to pathological changes in the neighbouring tissue I feel justified in classing them as a distinct group. They are Polypus of the Gum,

* A Prize Essay. As the actual writing of the essay was limited to three hours, it was not possible to deal with such an extensive subject as fully as it seemed to demand.

Dental Ulcers, Epithelioma, Glossitis, and perhaps Epulis and Ulcerative Stomatitis. There are also two surgical complications of specific origin which cannot be included in any of the above classes, namely, Actinomycosis, and Phosphorous Necrosis.

Local Periodontitis may be acute or chronic. Acute cases may be considered those which terminate in suppuration; chronic cases those in which suppuration does not take place, excepting, may be, at the line where the gum and periosteum meet. Periodontitis may commence in the acute form and terminate in the chronic and vice versâ.

Acute Local Periodontitis. As a concomitant of dental caries its origin is probably due to the direct absorption by the periosteum of septic material from a putrid pulp; it may also arise by inflammation spreading from a living inflamed pulp. Coleman states that the septic material may possibly influence the periosteum through the dentine and cementum, whilst others have supposed that it may effect the membrane through the vessels which supply both the pulp and the periosteum.

Pathology. Seeing how closely the pathological changes occurring in Periodontitis are connected with those of Alveolar Abscess I shall include here the pathology of both. First the vessels at the irritated spot dilate, then, after a longer or shorter interval, the blood-current in the vessels slackens; whilst without the limits of the area of irritation the vessels are dilated and more than normally active. Thus the periosteum becomes congested and swollen, but this swelling can only be effected by raising the tooth. Hence the apparent lengthening of the tooth. Many blood-corpuscles, chiefly leucocytes, now pass through the vessel walls (*diapedesis*) whilst finally the vessels become so crowded and blocked that the stream stops, and *stasis* is said to have occurred. When free the cells travel towards the irritated spots by aid of their

amœboid contractility, the softening changes in the surrounding connective tissue rendering their passage more easy. Liquor sanguinis passes out with the corpuscles, and forms the inflammatory effusion. Now if the irritation be not too long continued or too severe in character, and the periosteum be not lowered in vitality, the truant leucocytes and serum may be carried off by the lymphatics, and the inflammation thus end by *resolution*. But if this be not the case a further series of changes takes place. At the spots of chief irritation a rapid cell proliferation occurs, accompanied by a similar proliferation of the cells of the adjacent connective tissue. But there is another agent at work. The tissue becomes invaded by pathogenic micro-organisms, and these the leucocytes attempt to devour (*phagocytosis*). Many of the leucocytes, however, perish, forming the *pus cells*. On the other hand, the micro-organisms, probably by the poisons they secrete—known as ptomaines—produce a peptonising action on the leucocytes and neighbouring tissue, causing a liquefaction, the resulting fluid forming *pus*. This is *suppuration* and it is this area of liquefaction which, when circumscribed we call an *abscess*. In the process the bone may be partly absorbed and penetrated, when the pressure of the mass of cells readily distends the softer tissues. A continuance of the process causes a like breaking down towards the surface, at last the epithelial covering only is left, this speedily gives way and the pus is evacuated.

Symptoms.—In the first stage the tooth feels uneasy, but pressure brings relief, since the blood is thereby forced from the dilated vessels of the periosteum. In the next stage the tooth is still further raised in its socket and is slightly loose, whilst the gum in its neighbourhood becomes swollen and tender, and the free margin assumes a deep red colour. The pain is of a dull, constant, gnawing character, and pressure is now unbearable. This is due to the fact that serum has passed

out of the vessels into the surrounding tissue, whilst the vessels are in a condition of stasis ; hence biting on the tooth can no longer empty the vessels of surplus blood, but causes abnormal pressure on the nerves. The disease is usually accompanied by a certain amount of febrile disturbance.

Treatment. The application of counter-irritants, of which equal parts of tincture of Iodine (double strength) and Fleming's Tincture of Aconite is perhaps the favourite. Many prefer the liniment of Iodine to the tincture. Capsicum plasters are convenient and useful. Local blood-letting often gives relief, or a pad of blotting paper soaked in a ten per cent solution of cocaine hydrochlor. and held against the gum is sometimes of service. Hot water or poppy-head fomentations held inside the mouth may reduce the inflammation. If the inflammation is due to a putrid pulp, the pulp-chamber and canals must be cleared, treated antiseptically, and filled. If the cause be a living inflamed pulp it will probably be necessary to first devitalize the pulp. The tooth should be removed if of no value. A saline purge followed by tonics is the general treatment indicated.

Chronic Local Periodontitis. This may be merely the condition left after the acute form has passed off, or may be the result of a dead pulp. The symptoms will be similar to those of the acute form though less intense. The gum will appear thick and red at its margin round the affected tooth, shrunk from its attachment, and the alveolus beneath absorbed, so that the tooth will gradually loosen and fall out. On extraction the tooth generally brings away with it a part of the alveolo-dental membrane, which is seen to be thickened, of a dark red colour, and emitting an offensive odour. Dental Exostosis and Inostosis are common results of chronic periodontitis.

Treatment to be followed is the application of counter-irritants, or local depletion, careful removal of pulp with

antiseptic treatment, and filling the tooth. If the case affords evidence of being complicated by Exostosis the treatment must invariably be extraction.

Alveolar Abscess. The immediate cause is Periodontitis. The pathological changes have already been described.

The mischief begins at the apex of one or both of the fangs of the carious molar by an effusion of plastic material, around which, according to Salter, a little cavity is formed by the absorption of the alveolus. This effusion of lymph becomes condensed into a sac, within which pus is formed; so that it occasionally happens that on extracting the peccant tooth, the sac and abscess are brought away with it. Salter observes that the sac is generally attached to that fang on the side towards which the tooth is most decayed. So soon as matter is actually formed rapid absorption of the surrounding bone takes place, and the pus makes for the surface, finding an exit either at the outer surface of the jaw at a point corresponding horizontally with the extremity of the fang, and piercing the gum within the mouth, or by perforating the socket and burrowing in the soft tissues points externally. Whether the abscess points within the mouth or externally is in many instances determined by the relative length of the roots and the depth of the sulcus. Sometimes the pus finds vent for itself by a gutter along the course of the fang, the matter being discharged at the neck of the tooth, but this very rarely happens in the case of molars.

Symptoms. In acute alveolar abscess these will be similar to those of acute periodontitis, though much intensified. The tooth will be raised in its socket, loose, and very sensitive to pressure, the gums around it swollen, deeply congested, and soft or even boggy to the touch if pus has infiltrated the surrounding tissue. The sulcus instead of being concave is pushed up so as to be convex. In cases where the swelling is less diffused the gum over the apex becomes globular in

shape. In the stage during the formation of pus and the absorption of its bony casing, the swelling will be comparatively slight, but pain will be intense, and of a dull throbbing character. After the pus has made an exit through the bone the pain will be greatly relieved as the pressure is reduced, but the swelling becomes rapidly larger.

In chronic cases the patients usually experience but little pain, and hence do not seek relief. The size of the swelling fluctuates, generally increasing at night. Chronic abscesses sometimes exists several years with little or no evident inconvenience.

In acute cases general symptoms of fever are to be found. There are a quickened pulse, elevated temperature, and generally a thickly-furred tongue, scanty and high coloured urine, and the skin hot and dry. In more chronic cases general symptoms are usually practically absent.

Diagnosis. There are several errors to guard against. On the one hand, as Salter has well pointed out, surgeons are apt to mistake alveolar abscess when involving the integument of the face for diseased bone, etc., whilst on the other hand dentists are apt to attribute to carious teeth morbid conditions which have been coincident with though not produced by them. It is important to differentiate alveolar abscess leading to infection of the submaxillary lymphatic glands from enlargement of these glands arising from purely constitutional causes, as is not infrequent in strumous subjects. Another difficulty arises when the abscess forms in the substance of the jaw, leading to the bulging of the outer and inner alveolar walls, when it may be mistaken for a tumour.

Treatment. - When the abscess threatens to burst externally the tooth should be immediately removed. This is particularly necessary in the case of lower molars since gravitation of pus with the formation of a sinus opening externally is so liable to occur. In addition to the extraction it is

advisable to make a vertical incision between the cheek and the jaw, else the matter is apt to pocket and cause progressive absorption to the surface, and though the tooth be removed the abscess may thus still open externally. If outward pointing is feared the skin may be supported externally by a pad of teased out cotton wool soaked in collodion. Where the collection of pus is very large an incision should invariably be made, and also in those cases where the pus does not find a ready exit through the socket. The radical treatment is generally called for when the pus is welling up by the side of the tooth, and when the symptoms are severe. If the abscess^s has invaded the substance of the jaw the tooth must be removed and the pus evacuated.

The conservative treatment consists in incising the swelling within the mouth, (taking care to keep the cutting edge of the knife directed towards the bone to avoid wounding the facial artery,) removing the putrid pulp of the diseased tooth, treating it with antiseptics and filling it. In some cases, as when the abscess is deep-seated, the absorption of the bony wall must be hastened, which may be done by constant poulticing of the gum over the region of the tooth by means of toasted fig, etc., or a more immediate result may be obtained, as Tames suggests, by thrusting a short double-edged scalpel down to, and if possible, through the spongy bone overlying the abscess sac. Rhizodontophy may be resorted to as a palliative treatment.

A saline purge should be prescribed followed by a course of tonic treatment.

Dental Fistula. Alveolar abscess is usually a trifling matter as regards its ultimate consequences, but occasionally it becomes a serious malady, and inasmuch as the teeth which produce the most serious results are the lower molars, especially the third, they become of particular interest. The tendency of the suppurative products in these cases is down-

wards, and there is more danger of an external opening being formed than from any other teeth. The opening from the lower molars is generally somewhere below the attachment of the buccinator, the angle of the jaw being the usual spot at which abscesses from the wisdom teeth open. When an alveolar abscess opens externally, directly the first inflammatory swelling subsides, contraction between the skin and the suppurating part commences, and the integument is drawn down into a more or less funnel-shaped cavity, at the deepest part of which is usually situated a little mammilla of red granulations, giving forth pus from its fistulous point. It is an unsightly appearance only to be exchanged, when the causing tooth is removed, for a deeper depression starred in its centre by a cicatrix. Sometimes the lip of granulations becomes elongated into a papilla and is covered with cuticle. Salter mentions one more than half-an-inch long, whilst Heath records a case where this condition gave rise to the idea that the growth was a horn! It is interesting to note that Bell describes these growths round fistulous orifices as small tumours.

Treatment. Remove the causing tooth, If this be not done there is scarcely any chance of the fistula healing. The fistula may then be syringed with antiseptics. Fox states the case of a lady who persisted for two years by applications of dressings to heal a sore of this kind but without benefit whilst the tooth remained. Sometimes a sinus which has long been permitted to exist is apt to discharge long after the removal of the tooth. Bell relates an interesting case of this kind produced by an abscess from a lower wisdom tooth. Here the fistulous opening was so complete that a part of any fluid taken into the mouth passed readily to the outside of the cheek, and which did not unite even on removing part of the parieties of the fistula. Mr. Pollock mentions the case of a patient who used cotton wool to plug the orifice. In such

cases it is best to freshen the edges of the puckered opening, and bring them together by fine silver sutures.

A rare consequence of Dental Fistula may be a Salivary Fistula. Coleman records a case.

Gravitation of Pus. At times the abscess instead of pointing at the lower margin of the mandible, opens through the internal wall of the alveolar process and burrowing downwards between the muscles of the neck may discharge into the throat, or through the external tissue at various points from the submaxillary triangle to the clavicle. Salter relates a case arising from a carious first lower molar which first opened below the jaw, then this orifice closed and was succeeded by another lower down, this also closed and was followed by another in the neck, and lastly two sinuses opening about an inch below the clavicle resulted. Another interesting case resulting from a carious lower molar is that recorded by Mr. Pollock. There was a large brawny swelling extending from the jaw to the clavicle and displacing the larynx. The case was so severe that tracheotomy had to be performed.

There are a few cases of fatal termination. Thus Heath records two cases of death resulting from a "low form of cellulitis" spreading between the muscles of the neck, which were distinctly traceable to alveolar abscess. The immediate cause of death was Edema Glottidis which is thus shown to be a possible complication. A remarkable case is that recorded by M. Robert and quoted by Salter. The patient had a carious lower wisdom tooth from which an abscess resulted, followed by swelling extending from the jaw down the upper part of the breast. In spite of incisions into the neck the patient died, and the post-mortem showed that the muscles of the neck had been dissected by "purulent inflammation." The matter had passed behind the clavicle even to the armpit. The suppuration was shown to have originated at the angle of the jaw immediately in contact with the decayed wisdom tooth.

Treatment. In all cases where gravitation of pus has occurred the diseased tooth should be immediately removed. This alone may suffice, but generally an incision is necessary and is certainly advisable. In cases such as Heath's he advises the early performance of laryngotomy.

Lymphadenitis, which may be acute or chronic, is not an infrequent sequence of alveolar abscess, especially in connection with the lower molars. The submaxillary lymphatic glands are these usually attacked. The glands are swollen and tender, and the skin over them red and adherent. Struma however, is very apt to cause enlargement of these glands, and one therefore needs be very careful not to attribute this condition to the teeth merely because they are carious. If the case is one of struma there will be no tenderness about the teeth, swelling of the gum, or other obvious connection with the glandular enlargement.

Treatment. When the teeth are in fault they must be removed, and hot fomentations applied within the mouth. If the malady is constitutional it often proves most obstinate to cure, an operation in most cases being necessary: thus there is an important difference in Lymphadenitis produced by a carious tooth and Lymphadenitis produced by Struma, as far as being amenable to treatment goes. It must also be borne in mind that the irritation of carious teeth is peculiarly liable to give rise to Chronic Lymphadenitis in strumous children, and therefore it is most necessary that diseased teeth should be treated early.

Acute Tonsillitis due to septic infection may result from the burrowing of an alveolar abscess. It will be marked by a furred tongue, offensive breath, salivation, pain darting to the ear and increased on swallowing, and swelling of the glands behind the angle of the jaw. The tonsils will be red and swollen.

Treatment. Remove tooth, and attend to the general health.

Septicæmia and Pyæmia are possible, though very rare, complications. They are due to septic infection of the system, Pyæmia being distinguished from Septicæmia by the formation of metastatic abscesses. Dr. Goodhart has recorded a case of Pyæmia resulting from an alveolar abscess arising from a carious lower molar. Suppuration passed to the orbit, followed by periostitis of the skull, Pyæmia and death.

Treatment consists in removing the cause, giving free vent to pus, and antiseptic measures, with large doses of quinine, salicylic acid or sulphate of potash. The diseases are invariably fatal.

An extraordinary case of death from thrombosis of the cavernous sinus produced by alveolar abscess is recorded by Mr. Pearce Gould. Details as to the teeth concerned were not very clear, but it would seem as if the lower molars are much concerned in the disaster.

Tumours.

(a) *Fibroma.* Heath states that when from irritation of unsound teeth inflammation is excited, it leads to an amount of effusion into the cancellous structure of the lower jaw, which distends it and forces out the external plate. This effusion can be made to exude by the side of or through the hollow tooth by pressing the jaw. This is slowly absorbed on the early removal of the tooth, but if the irritation be allowed to continue the effusion may become organised into fibrous tissue. Heath is convinced that the majority of fibrous tumours of the lower jaw originate in this way. There are several specimens of Fibroma removed from the lower jaw in the Royal College of Surgeon's Museum, which seem to have been due to carious teeth. These tumours though of slow growth ordinarily if irritated by injudicious application of

unless remedies, may assume enormous proportions and end fatally.

(b) *Enchondroma* also seems to be a rare complication. Sir Astley Cooper records the case of a patient with a tumour of this class in the mandible, the cause of which he ascribes to the irritation of a carious tooth. This tooth was evidently a molar as he speaks of the "fangs." I have come across other cases, but time will only permit me to mention one, which is of interest, as it was recorded by so old an authority as Bell. The history given is exposure of the pulp of a second inferior molar, Pulpitis, Periodontitis, and later the slow formation of a growth. On removal the tumour, about the size of half-a-geese's egg, was found to be semi-cartilaginous.

(c) *Osteoma*; being often the result of ossific enenchondroma, becomes another possible complication. Sewell says that in a few cases they would appear to be associated with persistent irritation—chronic periodontitis—spreading from the teeth.

Treatment in all these cases is to remove source of irritation, and to extirpate the tumour if it be a source of inconvenience.

Cysts are sometimes found in connection with the fangs of carious teeth. These are termed Dental Cysts. Tomes thinks that the morbid process is probably identical with that resulting in the formation of alveolar abscess, but being less acute a serous cyst is formed instead of a suppurating sac. Very rarely these cysts attain a large size. Heath mentions a case where a Dental Cyst in the mandible was at first mistaken for a solid tumour.

Treatment. Remove diseased tooth and as far as possible the cyst wall.

Necrosis of the Jaw. It is interesting to note that Hunter called attention to carious teeth giving rise to this

complication. The disease is due to the circulation in the outer part of the bone becoming cut off by an effusion of pus, (the result of inflammation), between it and the periosteum, the portion of bone thus deprived of its vascular supply becoming necrosed. Granulations are then formed in the part in contact with the dead bone, and the necrosed portion is severed from the living by a process of ulceration. But as soon as pus has separated the periosteum from the dead bone plastic lymph is poured out, which becomes converted into a shell of new bone inclosing the dead. This is the "sequestrum."

Only a small portion of the bone is usually affected; but there are a few known cases of extensive mischief. Fox describes a case where a patient lost four teeth and a large portion of the mandible from necrosis arising from a carious lower molar. Mr. Redman has also reported a case which originated from a carious first lower molar. This was a severe case extending from the ascending ramus to the symphysis, and involving all the teeth on the same side from the wisdom tooth to the central incisor. These teeth were all lost, together with a considerable portion of the bone.

Symptoms are those of severe Periostitis, the gums being much swollen and tender, whilst a constant discharge of foetid pus is poured into the mouth. The face becomes swollen, and the skin tense and shining. The teeth become very sensitive to pressure and very loose. The general health suffers considerably, and the pus usually finds one or more external openings. Through the cloacæ in the new shell of bone the dead portion can be felt with the probe, the contact resulting in a grating sensation.

Treatment consists in removing the sequestrum as soon as it is loose enough, and the shell of new bone sufficiently strong. Prior to this free exit should be given to the pus by incisions within the mouth, in order to prevent formation of

external sinuses, and a mouth wash of permanganate of potash, etc., used to combat the offensive discharges, The causing tooth must be removed, and as a rule those teeth which become so loose as to be an annoyance.

Trismus may result from an abscess connected with any carious lower molar, particularly, however, the wisdom tooth. It is in these cases brought about by inflammatory infiltration of the masseter muscle, combined perhaps with tonic spasm produced reflexly by pressure of the abscess sac on the dental nerve. (Salter.)

Symptoms. A hot, tender, and swollen face, and more or less inability to open the mouth.

Treatment. Administer an anæsthetic, force the jaws open and extract the causing tooth. The operation should be followed by the use of hot poppy-head fomentations.

Surgical diseases due to mechanical irritation.

Polypus of the Gum is a simple hypertrophy of the portion of gum between two teeth in which interstitial decay has taken place. The growth may rise to the level of the masticating surface and being bitten upon may ulcerate. It is usually supposed to be caused by the irritation of the cervical edge of the cavity, but Wedl and others think that it is more likely due to the product of the decayed dentine—in other words to the ptomaines formed by the micrococci and bacilli burrowing in the dentinal tubules.

Treatment. Remove the tooth if it be not worth saving. If conservative treatment be decided upon, the growth must be got rid of by escharotics, and the cavity filled.

A Dental Ulcer may form on the tongue from continued friction with the sharp edges of a carious lower molar (or any other tooth). They are very painful, but are distinguished from cancer chiefly by the absence of induration. *Treatment* is to remove irritation and touch the spots with nitrate of silver.

Epithelioma of the Tongue is a possible complication in elderly subjects. It begins as a dental ulcer, which being neglected becomes epitheliomatous. Mr. Bennett May removed the lateral half of a tongue having this disease and stated to have been caused by irritation of carious lower molars. The cancerous ulcer is characterised by a hard deposit at the base, spreading into the tongue, with acute pain, salivation, and cachexia. The *treatment* is to remove the irritation and to extirpate the disease. When disease is very extensive it must be left alone.

Epithelioma of the Gum is said to be a rare sequence following irritation from the jagged edges of a carious tooth.

It is important to recognise cancerous growth in the oral cavity early, and so with elderly people having ulceration of recent origin it is a good plan to try simple treatment for about a week, but if the ulcer still remains unhealed, and especially if it is increasing in size, surgical aid must be sought. A microscopical section will clear up the diagnosis. Any irritating tooth must be removed.

Glossitis, acute or chronic, may be caused by jagged teeth. In the former the whole tongue is swollen, and protrudes from the mouth, sometimes threatening suffocation. Removal of the irritation and free incisions—taking care not to wound the lingual artery—relieves this condition.

The chronic form is characterised first by hyperæmia, then an excessive growth of epithelium the superficial layer of which becomes opaque; and the coalescence of neighbouring patches, forming a whitish area. Cracks and fissures appear, and superficial ulcerations may form. In many instances the disease becomes epitheliomatous. *Treatment* is to remove irritation, and the use of a mouth wash of potassium chlorate, etc.

Epulis. There is some evidence to show that this may be due to the irritation of carious teeth, but I do not consider

such evidence strong enough to justify me treating of the subject.

Ulcerative Stomatitis. Tomes considers that in subjects predisposed to the disease a trivial source of irritation such as a carious tooth will serve as the starting point of this disease.

Actinomycosis is a parasitic disease, and is worthy of mention inasmuch as a carious tooth in the lower jaw is the commonest site of inoculation. It is characterised by hard, indolent swellings which ulcerate and discharge a substance resembling pus, but which under the microscope is found to contain a large number of the parasites, the *actinomyces*. The disease seems less rare in man than was supposed. Dr. Murphy has recorded two cases in which a lower carious molar was the channel of inoculation. *Treatment.* Remove the growth.

Phosphorous Necrosis. This severe form of necrosis is due to phosphorous fumes gaining access to the bone, a carious tooth being sometimes the medium of communication. It rarely occurs except in lucifer-match makers. The symptoms are the same as in ordinary necrosis, only much more severe. The sequestrum is characterised by a pumice-like bony deposit. Treatment of necrosis has already been dealt with.

THE TREATMENT OF SENSITIVE TEETH.*

By E. HOUGHTON, L.D.S., I.

The cases that I bring before you to night both refer to the same mouth, a gentleman about 60 with a fairly healthy mouth. The first case I treated in March, 1896. He came

* Communicated to the Manchester Odontological Society.

complaining of pain in the left upper molar. I found absorption had taken place. The pulp was quite healthy, and in drilling into the enamel I found the tooth was very sensitive. I treated it by fitting a gold plate carefully over the exposed fangs. I first took a model of the buccal surface and pared away the model at the neck of the tooth, so that the band would fit underneath the gum. Before cementing on the tooth I painted the portion beneath the gum with chloro-percha and fastened the plate with a pin and cemented it in the same way as I would cement a crown. I may say that this has been perfectly successful. Before I put the plate on, the patient could not bear either hot or cold water in his mouth. The success was immediate, and he has retained it in his mouth and the tooth is doing good service. The tooth was quite firm and has been so ever since.

The next case is slightly more complicated. In this tooth the symptoms are the same ; there is sensitiveness to extreme heat or cold. This tooth was complicated by decay on the distal surface. I treated that by filling with artificial dentine; then fitted a band around the tooth—a split band—which I tightened up after putting in position, by means of a screw. That case has been perfectly successful. The patient said he had had no trouble since. In both those cases the teeth were doing good service. The patients did not wish to lose them, and I tried them as experiments.

Mr. CAMPION said the first case was one of erosion, and in such a case he imagined the system adopted would be very useful, and he for one should try it the next time that a case should present itself. In the second case the originality of Mr. Houghton's communication was that he practically crowned the neck of the tooth without the necessity of cutting away the enamel, and thus he got a perfect fitting of the crown.

British Journal of Dental Science.

LONDON, SEPTEMBER 1, 1897.

PURE AND SIMPLE DENTISTRY.

We believe that there are still amongst us in the Profession those who hold the opinion that it was a bad day which saw us placed under the direction and control of the GENERAL MEDICAL COUNCIL, believing, as they do, that some such Institution as a College of Dentists would be more likely to recognise what was good for Dentistry. The day has, of course, gone past for re-opening such a question, and yet we can almost admit that such critics have recently had an opportunity to blaspheme against our present authority. For a College of Dentistry would claim that its very existence connoted the necessity for, and intention to provide, something better than "blacksmith" dentistry and the extraction of teeth. Few of our readers could be otherwise than surprised to read the remarks made by Mr. THOMSON at the close of the dental proceedings of the GENERAL MEDICAL COUNCIL at the May session. This gentleman had, presumably, listened to a lengthy statement by Mr. BRYANT dealing with the exhaustive Reports of the Inspector appointed by the COUNCIL to visit the examinations of the various Bodies granting Dental diplomas. Mr. THOMSON also had the opportunity of hearing the recommendations of the Dental Education and Examination Committee which were based upon the Inspector's Report. He had heard that "It is pleasing to have to report that all the Bodies now come up to the approved curriculum," and it must also be imagined that as a member of the COUNCIL Mr. THOMSON knew the ground covered by this curriculum. Yet, strange to say

(in the light of what we now know to be his views) it was not until the closing day of the discussion, and after it had been resolved to refer the Reports to the various Colleges for consideration, that Mr. THOMSON offered any objection.

The President of the Irish College has since received the honour of knighthood, and we congratulate the College and himself upon the distinction. We may allow that Sir WILLIAM THOMSON is a worthy representative and a good surgeon, but we must deny that his recent remarks at the Council show that he is in any way fit to legislate for the Dental Profession. Speaking generally we may say that the first part of Sir WILLIAM'S speech might be summed up as a protest against Dentists knowing too much of Surgery, and here he would have many in the Profession with him. But in objecting to the questions quoted with approval by the Inspector, as samples of what Candidates were required to know, he remarked that "It should be borne in mind that the Examination was of gentlemen who were to receive a License to practise dentistry pure and simple," and the meaning attributed by the speaker to the latter words was immediately afterwards made manifest when Dr. RENTOUL innocently enquired if it was a Surgical Examination. "It is a qualification for drawing teeth—dentistry pure and simple," responded Sir WILLIAM. We are not anxious to labour this startling definition, but would prefer to think that the Irish Representative must not be held too closely to it as we find that a moment or two later he referred to "the whole subject of dentistry." We have probably not heard the last of this remarkable speech, and in the meantime we hope that not only Sir WILLIAM but any other representatives who may share his ideas may put themselves in the way of ascertaining what is meant by Conservative Dentistry.

It was with a feeling of disappointment that we noticed that even Mr. BRYANT did not deal with Sir WILLIAM'S remarks in a sufficiently virile manner. No doubt the exigencies of time may have had something to do with this. Mr. NEWLAND-PEDLEY has, however, written a very sensible

letter to *The Lancet* which may do some good. We ourselves are not unduly anxious to attribute motives for an attack upon the curriculum, but if it be thought necessary to defend the *sine curriculo* diploma by a counterblast against questions which are put to ordinary ambulance classes, then it seems indeed as if the cause was a poor one.

ASSISTANT'S BOND.—Dr. Browne v. Dr. Calnan.—In the High Court of Chancery Division before Mr. Justice Romer, on July 30th, Dr. G. H. Browne, of the Hermitage, Brynmaur, moved through Mr. Fawcett, Q.C., for an injunction to restrain Dr. P. J. Calnan either by himself or in partnership, or as assistant, directly or indirectly practising as a surgeon or physician within a radius of five miles from Brynmaur. After hearing evidence, Mr. Justice Romer thought he was entitled to the injunction. He said the defendant entered into the service of the plaintiff on an undertaking to execute the usual bond. There was no doubt as to what was intended by that. It appeared that in the country the usual practice was for the assistant to agree and enter into a bond not to carry on business on his own account, or practise as assistant, within five miles for the period of five years of the place where the principal carried on business. The defendant obtained his assistantship by his promise to execute a bond which, in his opinion, he could at any time have been called upon to perform. The mere fact that the document had not been executed did not, in his opinion, prevent the plaintiff insisting that the defendant should carry out its terms. He granted an injunction restraining the defendant within the limits of the time and space he had mentioned from carrying on business as a principal or assistant within five miles of Brynmawr. The costs would be costs in the action.

For the protection of cement fillings, resin and wax in equal parts, melted on a spatula and poured on the filling before it is set, is superior to either wax or paraffin.

EUCAIN.—Dr. Otto Arnold uses eucain, and prefers it to cocain, as it appears to be free from all toxic effects ; but if teeth firmly imbedded are to be extracted, there is nothing better than nitrous oxide if carefully handled. He believes that statistics would show more fatalities from cocain than from nitrous oxide, though the latter had been in use so much more generally and so many years.

LOCAL ANÆSTHETIC.—Dr. Snyder believes that the action of local anæsthetics is always uncertain. When he sees the tissues grow white he feels sure that the effect will be good. The following preparation he finds satisfactory. Five grains of cocain, one-tenth grain of atropia, ten drops of carbolic acid, and one ounce of water.

GOLD FILLINGS.—Dr. Head, in *Dental Cosmos*, says that a gold filling, either of soft or cohesive foil, if it has perfect adaptation to good enamel-edges, will preserve the tooth as absolutely as if the original enamel remained dense and undecalcified. A filling at best can only restore the tooth to its original condition of perfection, and if the acid and bacteria, which originally created decay, should attack it again, there is no reason why the tooth-substance should not disintegrate a second time. This is an unanswerable excuse, and may convince the patient many times, but if decay recur too often in the same place, the coincidence is most unfortunate for the dentist.

SALIVA, AND ITS ANTISEPTIC PROPERTIES.—Dr. Hugen-schmidt has made an attempt to determine why operations on the mouth are so seldom followed by infection. He was not able to prove that the saliva possesses any germicidal power. Nevertheless, he says it has a mechanical action to keep down infection, and also dilutes and washes away alimentary material, and by its alkalinity it prevents fermentation.

NEURALGIA.—The *Presse Medicale* states that a subcutaneous injection of 15 to 60 drops of a solution of chloroform, 10 grams, and guaiacol, 6 grams, always soothes the pain, improves the neuralgia often and occasionally cures it. The bottle should be sheltered from the light and kept in an opaque paper. The injection should be made as close as possible to the nerve trunk, once a day, or once in two or three days. These injections have also been found effective in small surgical operations as an analgesic.

STICKY WAX for holding in place clasps and teeth, previous to soldering is best made of rosin two parts, and bees-wax one part. Melt your rosin first, in a tin cup or an old dipper, then add the wax and stir till well mixed, and pour in a basin of cold water. Take up a piece about the size of a walnut at a time, and roll out with your hands on a smooth surface into pencils; care must be taken to keep the fingers moist, or the mixture will stick. This is the best preparation we have ever used, and it may be melted over and over again.

Dental Office and Laboratory.

SALIVARY DEPOSITS WITH PUFFY GUMS.—Dr. Register, in the *International Dental Journal*, says he applies dilute tincture of iodine freely to the teeth and gums. This will constrict puffy gums, drawing them away from about the teeth, and clearly reveal deposits which would otherwise escape detection. Follow by applications of commercial ammonia; cleanse and polish the surfaces of the teeth by means of buffs and fine pumice.

REMOVAL OF GREEN DEPOSITS FROM CHILDREN'S TEETH.—Dr. Register gives the following prescription in the *International Dental Journal*.

Tr. iodi. ct.	.	.	.	3i
Glycerini	.	.	.	3ij
Ol. menth. pip. q. s. for flavouring.				M.

To be painted on the surfaces of the teeth by nurse or parent.

Abstracts of British & Foreign Journals.

PORCELAIN INLAYS.

By N. S. JENKINS, D.D.S., Dresden, Germany.

At last I realized that a new material must be evolved, one which combined the good qualities of both porcelain and glass, and to its evolution my laboratory has been devoted for the past three years. The problem I set myself was to make a low melting porcelain, which should retain its colour, could be melted to a perfect fusion in a gold inlay, and which would have a clean edge so hard that it would not fracture in setting, nor in enduring the strain of mastication. This result I have at last attained.

Our most successful experiments in pure glass were made by my partner, Dr. O'Brian. Among other things, he discovered that, after a glass filling had been melted, its surface could be immensely improved by placing upon it a thin plate of clear glass and melting once more. By this means a surface was obtained so smooth, and so nearly representing the enamel, that the most beautiful operations could be made. Only, as in all glass fillings, contours were not certain, overflow easily occurred, and perfect manipulation required much care, experience and skill. Besides which, the porosity of the underlying glass made permanency of colour uncertain. This method is, however, an extremely valuable one. Every now and then a case occurs where the conditions require just such a surface as can be obtained only in this manner.

In making an inlay filling, the first step is to properly prepare the cavity. There must be no undercuts, or at least only in one direction, and the edges must be clearly defined. A perfect impression must be obtained, employing gold-foil for the purpose. Platinum, however thin, and however carefully used, is too intractable for accurate work. For my method, gold-foil No. 30 is in almost all instances sufficiently thick. For very large and complicated cavities No. 40 may be taken. The piece of foil must be generously large, and carried, with cotton or spunk, first to the deepest part of the cavity, leaving the edges free; for, of course, the foil will

not stretch, but tear, if it is confined to any exterior point as it is being pressed home. Then another and somewhat larger piece is packed into the cavity, and when this is quite full, the edges are then made, and pressed or burnished until they are perfectly smooth. If there is too much overlapping margin, it can be trimmed away with a sharp lancet. The cotton or spunk must thereupon be removed, when, with a sharp-pointed excavator, inserted at the most favourable place within the cavity, the gold can be loosened and gradually worked out in unimpaired condition. The impression thus made is laid upon a creamy bed of powdered asbestos and water, at the bottom of a small, long-handled platinum or nickel tray, which is gently tapped until the gold has sufficiently imbedded itself in the asbestos. The tray is now held over the blow-pipe and the asbestos completely dried, a condition usually indicated by a loosening from the bottom of the tray. The contents of the tray being sufficiently cooled, the powdered porcelain mixed with water—distilled water is preferable—is placed in the impression, care being taken to have it come exactly to the edges, but not to overflow at any point. It is then built up somewhat higher in the middle, or on those parts which it is desired to contour, an excess of material being necessary to compensate for the consolidation attendant upon melting. After some experience it is possible to get, in most instances, the exact fulness required in one melting, but there is no objection to adding more porcelain and remelting, except loss of time. When the inlay has been properly packed, a cover, which has an opening through which the process can be observed, is put upon the tray, and the whole placed in an asbestos-lined muffle, open on one side, and with a round hole in the bottom. Through this hole a gentle heat from the blow-pipe is turned on, the moisture in the powdered porcelain thus being slowly evaporated, not boiled out. Then the finger is placed upon the spring of the blow-pipe, and under the action of the bellows the heat is very gradually increased until the mass is completely melted. The finished inlay is then removed from its asbestos bed, and the corners of the gold-foil gently turned backward until it comes away in a complete piece: Any particles of gold which may adhere to the inlay can be easily removed with the point of an excavator. After trying it in the cavity, to make sure that the fit is perfect, the inlay is usually grooved on the inner surface, generally with a small diamond disk. Slight undercuts are made in the cavity, everything is perfectly dried, and the

inlay is set with some reliable phosphate of zinc mixed to a thick cream. A little of the phosphate should be smeared within the cavity, as well as upon the bottom of the inlay, the latter being carried at once gently into place. In an approximal cavity I use a piece of tape to bring the filling into position, and at the same time remove the surplus phosphate. In other cavities any convenient method may be employed to remove the surplus, but in all cases it is best to exert the final pressure with a bit of wood, except where it happens, as sometimes in a labial cavity, that the thumb-nail can be easily used. With firm but gentle pressure the inlay is held in place for a few minutes, when it can be left alone, with the rubber-dam in position, until the phosphate is completely hardened. In many cases it is safe to cover with varnish, dry with hot air, and remove the dam after a few minutes, but this detail is a matter of judgment. At a subsequent sitting any slight surplus of overlying phosphate is carefully removed with a fine-pointed excavator, when it will be found that the line between the inlay and the edge of the cavity is no wider than such cracks as one often finds in the enamel.

The beauty of this work is equalled only by its practicability. Accurate contours can be made. Of course it is not applicable to all approximal cavities, but in places where its use is and indicated there is no doubt about the condition of the cervical margin, that weak point in obscure cavities, and especially where the pulp is nearly exposed, if intelligently and accurately made it will stand even better than gold, since it is not supported by, but assists to support thin and frail edges. The operation, although requiring considerable time, is far easier for the patient to bear than the packing of gold. The time of the patient may be saved by taking the impression at one sitting, and making the filling in the patient's absence. To be sure, by carefully following the directions, any ordinary dentist can in many instances make in this manner a beautiful and enduring operation, but it is by no means a cheap and easy method. Its proper employment requires the highest qualities of skill, judgment and taste. Only experience will show how the obstacles peculiar to this process are to be overcome, but when this method is once mastered, it gives to the competent dentist a range of operations so wide as to greatly increase his interest in his work, as well as his usefulness to his patients, who immensely appreciate the advantages of this treatment.

Time fails to enlarge upon the use of this porcelain in pivot teeth, crown and bridge work. With it all the visible part of a broken down molar can usually be restored, with a platinum ring about the neck of the tooth. Malformed roots can be securely crowned, with or without a ring, according to the case, and where the tooth must be thin, because of the closeness of the bite, a far stronger tooth can be made with this material than with a soldered gold backing. When a tooth thus united to a platinum pivot is put under the hammer, it will be found that the tooth will fracture before this porcelain. One advantage is found in being able to solder rings, pivots and pins of platinum with gold, and then melt the porcelain without fearing that the gold will melt or flow.

Dental Register.

QUEER THINGS ABOUT MANKIND.

Few people are aware of the wonderful engineering skill and ingenuity with which their bodies are constructed. If patents were taken out for all the clever contrivances to be found there, they would probably keep the staff of the Patent Office going for three months.

Who would think that in his eye there is a block and pulley, or "tackle," as the sailor calls it, as complete and efficient as that with which a ship hoists her mainsail? There it is, however; and whenever you look at the tip of your nose the muscle that moves your eyeball works in it. There are several of these pulleys in the body.

Another clever dodge in Nature is shown in the bones of the face. Accomplished engineer that she is, she always uses the smallest quantity of material sufficient for strength. In making the bones of the face, she wanted a large surface to which to attach the muscles; but, as she didn't wish to encumber us with heads as heavy as an elephant's she burrowed hundreds of little holes in the bones, called air cells, and thus secured strength, large surface and lightness.

In the same way she made the long bones of the legs and arms hollow in the middle. What a saving this is may be understood from the fact that a hollow shaft of bone or iron

—or any other substance—is about twice as strong as a solid shaft containing the same quantity of material.

When you get a severe cold you are apprised of the presence of another cunning device—the Eustachian tube. This tube is two inches long, and passes from the inside of the ear to the back of the mouth. It was put there to keep the air at the same pressure inside the drum as outside. Otherwise there would be no vibration of the drum, and you would be almost stone deaf. When you get a bad cold this tube sometimes becomes inflamed and blocked, and you are made quite deaf.

Adam's apple, if it was that fruit that brought into the world all our woe, is now a useful organ. It serves as a sort of storage cistern of the blood for the supply of the brain. When the heart sends up too much blood, Adam's apple intercepts it, or part of it; and when the direct supply from the heart temporarily runs short, Adam's apple gives up its store.

The liver is a most wonderful organ, containing facilities of several kinds. But perhaps the most wonderful thing in it is that part set aside to look out for and arrest poisons.

All the food that you eat, except the fat, has to pass through the liver, before going to the heart and body generally; and in the liver there appears to be stationed something in the nature of customs officers, who examine every bit of food and remove from it all substances dangerous to the body. But they are only capable of dealing with the small quantities in ordinary food, and when you are so foolish as to eat poisonous mushrooms or mussels they are quite overpowered.

Another protection from danger is afforded you by the supply of a small quantity of hydrochloric acid to the stomach. There are little machines in the stomach specially designed for the manufacture of this acid from the salt you eat, and they are so regulated that they produce a quantity equal to one-fifth of one per cent. of the contents of the stomach. Experiment shows that this is exactly the percentage required to destroy the microbes that we swallow in thousands in our food. But for this thoughtful provision of Nature we would probably get a new disease with every meal.

Most people know the use of the epiglottis, which saves us from eminent death every time we swallow a bit of food. At the back of the mouth the air-passage and the food-passage

cross each other, and, whenever we swallow food, it would inevitably go into the windpipe and choke us, only that this little body pops down and covers the entrance. It is like the policeman who regulates the traffic where streets cross.

The semicircular canals, for centuries a physiological puzzle, are an extraordinary device for enabling us to keep our balance. They are little channels, hollowed out, in connection with the ear, in the bones of the head, and partly filled with fluid lymph. As our head or body sways, the fluid moves, acting like a spirit level, and informing the brain whether we are standing on the perpendicular or at a dangerous angle.

One of the most valuable of all the inventions made for our comfort and safety is the perspirative gland. It acts like the safety valve of a boiler, letting off heat when we are becoming dangerously warm. If our temperature rose seven or eight degrees, we would not have twenty-four hours to live. The value of the sweat gland is therefore obvious. In fact, without it, a football or cricket or rowing match would be out of the question, and we could not safely walk at a speed of more than a quarter of a mile an hour. Nature has taken good care, however, that we should not run short of these useful organs, and has given us no less than 2,500,000 of them.

So inventive was Nature when constructing our body that the difficulty is to stop enumerating her clever ideas. She saw that we would very soon grow tired if we had to hold up two heavy legs by means of muscular effort, so she made the hip-joint air-tight, and the pressure of the air alone keeps the leg in its place.

At the same time, although she has not discovered ball-bearings, she made the ball of the leg bone and the socket of the hip so smooth, and oiled the joint so well, that the friction is practically nothing.

When the spinal canal in the backbone was made, great pains had to be taken, for, while it consists of many pieces and is freely movable, it contains the precious spinal cord, one nip of which would be fatal. The measurements are so accurate that there is no danger of such an event. Wherever there is much and free motion, as in the neck, the canal is large and open, and a nip is impossible.

Again, the heart and lungs are, of course, the very basis of our life. They are in constant motion, and if allowed to rub against the chest walls around them, they would either

get inflamed or wear away by friction. Nature has, therefore, surrounded them with a double sac, and between the outer and inner layers of it she has placed a quantity of lubricating fluid.

But the most remarkable of all devices is that for splicing broken bones. The moment a bone is broken, a surgical genius is at once dispatched from the brain to the spot. He proceeds to surround the broken ends with a ferule of cartilage. This is large and strong, and takes quite a month to complete. When the two ends are held firmly and immovably in place by the ferule, this mysterious surgeon begins to place a layer of bone between them and solder them together. And when the layer is complete and the bone securely welded, he removes the ferule, or callus, just as the scaffolding is removed from a finished building. Often a bone does not get broken for two or three generations, and yet this power to form the callus, and knowledge of how to do it, is never lost.

Scientific American.

BLEEDING AFTER EXTRACTION.

By JAMES McNAUGHT.

I should like briefly to make known a simple method of stopping continued bleeding after extraction of teeth, which has proved quite effectual in my hands in several cases, in some of which plugging, various styptics, the actual cautery, etc., had been tried, without success. It consists in passing a double silk thread through both sides of the torn gum, either with an ordinary curved needle or a handle needle, and then tying firmly over the alveolar border. In none of the cases in which this method has been employed has it failed to stop the bleeding immediately and permanently. The stitch may be removed at the end of forty-eight hours. The merely temporary success or complete failure of the usual methods, and the perfect success of that described, leads me to think that it may prove generally serviceable in what is frequently a very troublesome, if not dangerous, form of hemorrhage.

Dental Cosmos.

ANTI-EXTRACTION.

By Dr. WM. N. MORRISON.

Yearly there are extracted by the bushel teeth and roots, firmly set in the jaws, susceptible of repair and capable of performing a duty and service ten times greater than that of the best artificial substitutes. A patient with the toothache cannot take a calm, sensible view of the situation, of the irreparable injury not only through the loss of that member, but by the change of position the others will take and the unavoidable loss of the use of its opposing fellow. Out of one hundred teeth extracted, ninety-nine should not be extracted, but should be carefully and painlessly cleaned from soft decay at the margins (not over the pulp), and filled with some non-conducting cement and kept filled, imperfect though it may be.

There are many persons, mostly ladies, who wear jewels and pearls and expensive clothing to beautify their exterior, whilst they intrust their pearls of inestimable value to the hands of the most inexperienced cheap dentists, and get his cheapest wares at his cheapest price, then go abroad and boast of the amount economized in their dental bills, when one glance at their faces and one zephyr from their mouths are most convincing that their dental services were most dearly bought at the expense of their beauty and health. The worthy cheap dentist has a fruitful field, and could do an immense good, if he would confine himself to legitimate cheap dentistry without mentioning an arbitrary fee for gold work, not equal, in many cases, to half of what the material used would cost.

The patient, young or old, should be told how to brush and pick and rinse his teeth, and this fact impressed on him, that teeth decay only from the outside, and for want of proper care and cleanliness. Some dentists make their living out of their patient's neglect and ignorance of the correct laws of hygiene, just as some physicians do. With our advanced knowledge of the worth of good natural teeth, and the present improved instruments and facilities for treating sensitive cavities in all positions of the teeth in a comparatively painless manner, and the numerous materials for filling such cavities, each good in its place, there is no truth in the saying that any tooth or root cannot be filled. All turnkeys, forceps, and extracting screws as constructed to remove firm teeth or roots are barbarous relics of the Inquisition. For years I have extracted teeth or roots

only when they were so loose they could be removed with the thumb and finger, and most heartily wish every other member of the profession would adopt that rule. They would be gratified at the conservation and restoration Nature can accomplish. There should be no artificial dentures made by the future dentist. The artificial leg and arm maker could increase his business with just as much justice by recommending the amputation of all rheumatic and neuralgic limbs by the aid of gas, and starting out his victims with his substitutes, which bear the same relation to the the natural limbs that the best dental substitutes bear to the natural teeth.

Western Journal.

THE CRAZE FOR ARTIFICIAL TEETH.

By Dr. C. N. JOHNSON.

If the mouths of the growing generations continue to be managed as they are at present, they will take on a uniformity of expression, or lack of expression, that will soon become a national characteristic. I refer to the havoc made by the tooth-puller, beside which the "slaughter of the innocents" becomes mere by-play, and the substitution of artificial dentures on lines suggestive of the china shop. The extreme youth at which this defilement of the human face divine is generally begun seems amazing. Take an average crowd of young people at a country gathering of any kind, and not one in ten has a perfect set of natural teeth. If they are not decayed or covered with calculus, they are missing entirely; and heaven shade us while we blush at the artificial substitutes which usually take their place! I have seen a dozen sets of teeth of an afternoon, worn in as many months, with little more variation among them than there would be in a row of china dishes set up in a butler's pantry. This in face of the fact that the individuals wearing them were of all shades of complexion, temperament and individual characteristics, from the lightest blonde to the darkest brunette, and from the largest and thinnest in face to the shortest and chubbiest. The one monotonous line of small, white, regular chinaware, glistening an accompaniment to every smile of the victims, is

a spectacle for the gods of dentistry to go out in the wilderness and weep over.

"Something is rotten in the state of dentistry in Canada when such things can be. I have studied the condition somewhat closely, and looked into the causes that have led up to it, and if you will permit me I will enumerate briefly the things that seem to me to be accountable for it. First, is the lack of care on the part of the patient; second, the lack of faith in filling teeth, caused by so many failures following this operation; and third, the cheapness of artificial dentures. The reason that so large a percentage of teeth fail after being filled, relates not only to a want of care by the patient, but also to imperfect work by the operator. This is not intended as a wholesale arraignment of Canadian operators, but it is not saying too much to affirm, that the majority of dentists in Canada are not living up to the highest possibilities of their art. Nor can they be expected to do so, when their main energies are directed toward the replacement of lost organs rather than the saving of the natural ones. I have talked with many of the country practitioners over there, and have been surprised to learn what a large proportion of their practice—among most of them—consists in prosthetic work. They invariably tell me that they are simply submitting to the inevitable, that their patients will not have their teeth filled, and would not take care of them even if they did have them filled. To be sure, there is a nugget of truth in all this, and yet it leads up to the kernel of the nut I wish to crack with my Canadian friends.

The one great limitation working against more satisfactory results in the conduct of the average practice in Canada lies in the fact, that the dentist allows the patient to dictate too much as to what shall be done and the manner of doing it. The Canadian people are too prone to demand of their dentist, that things be done in a given way, instead of relying on the judgment of the operator as to the proper course to pursue. And I fear the average Canadian practitioner has not sufficient stamina to insist on doing it in the proper way, or not doing it at all. If dentists would take on an independence of spirit, and contend for the sovereign right which every true professional man should command, the people would soon recognize this quality among dentists as they do among ministers, lawyers or physicians. As it is at present, there is too much dictation on the part of the patient, and the result is as we see it.

A young girl notices some china teeth in the mouth of another girl, becomes envious and wants some like them, or rather she wants some a little bit nicer—straighter, smaller and whiter. And the dentist, fearful of losing her patronage, does her bidding like a bond-servant. Thus the wretched work goes on, and we see the defilement all over the land. Some of the most beautiful girls in all the world—for they have them in Canada—are rendered expressionless and inane by this practice, and it is time the dentists of that country took on new methods and developed their calling into the dignity of a delightful art which dentistry aspires to be when practised on the plane of its highest possibilities.

Dominion Dental Journal.

CONTOUR FILLING.

By W. E. GRANT, D.D.S., Louisville, Ky.

Much in years past has been said, and even at the present day controversies are frequently heard as to the advisability of contour filling, the preservation of the interdental space, etc. Like many other disputes in dentistry and in medicine, there is some virtue in the opinions and ideas of those who cling with great tenacity to their views on these subjects. But it remains for each to decide whether or not he will accept and endeavour to accomplish the modes and principles suggested and outlined for us by the advocates of contour filling, or will be satisfied with the feeling that anything is good enough so long as it stays in place and the patient suffers no pain.

If we are to accept our profession as one of science and art we should endeavour to uphold the principles suggested in these words. As to art, it seems that many of us fall short in this point of professional acquirement in a number of different ways, but none more to the disgrace of true art than in the lack of contour filling. The word contour means the outline, so if we are to do contour work we are to outline the original figure or shape of the particular tooth to be filled. Perfect approximation and many other minor details are questions to be decided on the moment.

It is the duty of our profession to supply natural means as much as possible ; let us therefore decide that contour filling is to be performed—how to do it can be considered later. Perfect regularity and absolute uniformity in the teeth are not necessary to advance or beautify the expression of the face, for a slight irregularity will sometimes add to the attractiveness of the appearance ; still as a general rule it is our duty to replace that portion which has been lost through the ravages of decay. This may be accomplished with many of the filling materials at hand, but for permanency we must rely upon the amalgams and gold.

Having decided that a certain filling is necessary the question then arises—shall we prepare and fill the cavity half full of material, or fill it flat with its edges, or extend the filling until we have the original apposition and outline. This seems to be a simple question and one which ought to satisfy the mind of any enquirer as to the proper course of procedure. If we are to replace that which is lost by decay, why not do it completely and with an artistic eye ? The old adage, "Things that are worth doing at all are worth doing well," applies here as well as elsewhere. In addition to the truth of this statement we are professionally and sincerely bound to do the very best for our patients, for they have intrusted themselves to our judgment and honesty, and if after cutting a third and nearly half of the tooth structure away we put in a filling which barely extends to the edges of the cavity, we have wilfully robbed them of the service of half the tooth and also left a harbour for food which is bound by its own tendency to lodge in these openings and remain there. I often liken these openings to the old willow stripper—open at the top and the further down you carry materials they tighter they pack in.

These are some of the inconveniences to which patients are subjected, but we must yet consider one of the most important features of all, which of course is especially noticeable in the anterior teeth, and that is their unsightly appearance. No part of the human anatomy is more exposed to even a casual observer, and certainly no other portion adds more to the expression than does this one. There is harmony in nature and consequently there is harmony in variety, so we must employ an artistic judgment. It is necessary that we harmonize the outline of these anterior teeth and also that we consider the facial expression. The dentist who fails to consider the artistic part of his profession falls short of his

calling. Nothing can mar the appearance so much, and so completely unbalance the entire expression of the face, as cutting several of the anterior teeth to less than half their natural size and then filling them without any regard to their original outline, reminding one of stopping the holes in a log house with mud. Even though the patients are compelled to submit to the loss of more time and greater pain, these things are forgotten. They are willing to pay more for services rendered, since they and each of us should want the most satisfactory result.

As previously stated, I shall not consider the various different modes of preparing for these operations, nor the special detail features to be observed in accomplishing them, since they are of minor importance and naturally suggest themselves.

Dental Digest.

NEW METHODS IN PROSTHETIC DENTISTRY.

By Dr. T. C. WEST, Natchez, Miss.

In the construction of a vulcanite denture a more life-like appearance is obtained, and greater accuracy and greater strength secured, than by the old method of procedure, by the adoption of the following innovations: (1) After securing an accurate plaster cast, coat it with rubber cement. Into the cement press closely on to the cast with thumbs and fingers, black vulcanizable rubber, which will adhere to the cast. If there are any depressions on the alveolar ridge the black rubber should be thickened at those points to even up the surface. (2) The next step is to vulcanize this—but only about three-fourths the usual time of vulcanizing a rubber plate. This forms what may be called *a base plate*, which is to be tried in the mouth and trimmed to accommodate the muscles. It will be found that this will fit the mouth better than the ordinary vulcanite plate, because it has been pressed closely on to the cast with the thumbs and fingers, escaping the screw pressure in closing the flask after packing, which is so apt to distort or obliterate the finer features of the cast. The rugæ are also nicely represented, the rubber over that portion being of uniform thickness. (3) This vulcanized

piece is now used as a base-plate in "taking the bite," which place in the articulator and carefully fill the palatal portion of the vulcanized base-plate with plaster. (4) The bite-wax is removed when the plaster has hardened and the surface of the base-plate washed with chloroform, benzine or gasoline, the alveolar ridge portion coated with amber cement and covered with a sheet of red rubber—not extending it over the palate. (5) The teeth are now warmed and pressed into the red rubber. It will be found that the rubber will bulge over the necks of the teeth, forming a very natural festoon, without any spatulating. (Teeth with a slight groove at the neck, such as are made for celluloid work, are the best for use in this method.) (6) The next step is to place a strip of wax to cover the pins of the teeth, being careful not to melt it. In this condition the piece is tried in the mouth, and any desired changes in the position of the teeth made by removing the tooth, warming it, and resetting as desired, while the piece is in the mouth. (7) Now a piece of modelling composition is used to fill the vault and form a support for the lingual faces of the teeth. (8) When this is hard the teeth are removed and a *thin* sheet of pink vulcanizable rubber is warmed and placed over the labial and buccal surfaces, extending over and into the depressions from which the teeth were removed, each tooth being then warmed and returned to place, the sockets in the modelling composition showing the exact position of each tooth. (9) Now coat the surface of the pink rubber with light tin foil—it is not necessary to use heavy foil, as no screw pressure is to be used in this process. (10) Next put the piece on the cast which was poured into the vulcanized base-plate (see 3) and place it in the shallow portion of the flask, building the plaster up so as to support the buccal and labial faces of the teeth. (11) The modelling composition is now removed, as also the wax from the pins of the teeth, and for this purpose it may be necessary to use hot water. (12) Coat the teeth about the pins with amber cement and put in red rubber, cut in small pieces, so as to anchor the teeth; coat with a layer of tin-foil, and—without either soaping or varnishing the plaster—fill the upper portion of the flask, put in the bolts and vulcanize in the usual way, *regardless* of the partial vulcanization of the black rubber base plate.

When the piece is removed from the flask it will be found that there is no excess of rubber and no filing or scraping to be done. It is necessary only to rub the surface with a stick wrapped with bibulous paper, dipped in a dish of pulver-

ized pumice moistened with water, alcohol, or best of all, with chloroform. This can, of course be followed with chalk and a piece of chamois skin or flannel, and the rubber bleached by placing in a dish of alcohol in the sun. By this method there is saved the time usually spent in "waxing up"; in waiting for the plaster in the flask to harden in order to remove the wax; in packing, heating up and screwing down the flask; and the time required to scrape and finish up the piece, also preserving the hard vulcanized surface-portion of the rubber.

Method of Modelling Gum Festoons.—Having vulcanized the base-plate, as in (1) and (2), the teeth are waxed on as usual; but instead of carving up the gums, lay a strip of moldine over them close to the necks of the teeth. Punch holes in the semicircular piece of very thin rubber dam and stretch this over the teeth, care having been taken not to leave any wax between them. Now stretch the rubber-dam back over the moldine, which by a little manipulation through the rubber forms the gums very nicely. Where necessary the rubber can be turned back and moldine added until proper contour is given. The piece is now flaked with the rubber-dam still covering the moldine. When the flask is opened and the wax washed out the rubber-dam is removed, carrying the moldine with it. The piece is packed in the usual way. After vulcanizing it will be found that the gums have a smooth surface of good form and that there is a happy absence of that dirty little piece of rubber down in between the teeth, which by the ordinary method gives so much trouble.

Ohio Dental Journal.

MIGRANINE IN NEURALGIA.

Möller reports on several cases of trigeminous neuralgia where one or two doses of 1 gramme of migranine produced astonishing results. The patients were all chronic sufferers from neuralgia, and had tried all known remedies. As a rule, two doses of migranine sufficed to remove the pain, and after some perseverance with the remedy, long intervals (up to six months) were enjoyed free from attacks of neuralgia.—

Wiener Klin. Rundsch., xi., 257.

WHAT WAS THE DISCOVERY OF ANÆSTHESIA?

There seems to be a singular misapprehension on the part of some regarding the discovery of anæsthesia. Our English brethren, for instance, claim the credit for Sir Humphrey Davy, as the discoverer of nitrous oxide. They also claim it for Sir James Simpson, because it is alleged he discovered chloroform, or its anæsthetic qualities. Both these men, although but secondarily connected with the discovery, had honours and wealth conferred upon them, while Wells and Morton died in poverty and distress.

No one claims for Horace Wells the discovery of nitrous oxide. It was only when he saw it administered that he discovered that it gave immunity to pain, or, as it was subsequently called by Oliver Wendell Holmes—anæsthesia.

There should be no questioning of the fact that Wells discovered the anæsthetic qualities of nitrous oxide—not the gas itself, or its physical properties—or that Morton discovered that ether possessed the same properties, or that Simpson first gave to the world chloroform as an anæsthetic. It has been claimed that to Morton should be given the honour, because he first demonstrated the anæsthetic qualities of ether, and because that is the agent most depended upon for prolonged anæsthetic effects. There is no disputing the fact that Wells antedated Morton by about two years, nor that he was the first to have an operation performed while under the influence of a drug or gas administered for the purpose of giving immunity to pain. Nor can it be denied that he was the first to announce such a discovery, or that for nearly two years he continued to administer nitrous oxide for the purpose of obtunding all sensibility to painful operations, before Morton publicly demonstrated the anæsthetic qualities of sulphuric ether.

That is the essential fact. It does not matter who first discovered nitrous oxide, or ether, or chloroform. The glory belongs to the man who first ascertained and gave to the world their power to overcome sensibility to painful operations—that is, the discovery of anæsthesia, and not the first presenting of the agents which it was subsequently learned possessed these lethean properties. Ether had long been known, and had been administered thousands of times for its intoxicating qualities, before it was learned that it gave immunity to pain, or that such immunity even existed.

The writer of this distinctly remembers that, when a mere boy, with others, the most of whom were a little older, on a number of occasions he visited the village drug store, where we all contributed our pennies to a common fund for the purchase of ether, to be administered to any one who would take it. He also recollects that the usual way to give it was to pour it into a wide saucer, and invert over that a funnel, the boy who took it placing his mouth to the nozzle and sucking in the vapour until intoxication was reached.

There was one young fellow, now long since dead, who gave great exhibitions whenever he could be prevailed upon to take ether—and it did not usually require much coaxing to get his assent—for he became extremely hilarious. There is a clear recollection of one instance in which he got away from the rest of us, and rushed on a canal boat lying at the adjacent dock, where he seized the tiller and broke it off, at the same time quite seriously injuring one of his fingers. The efforts to recover him are yet fresh in memory, with his bewildered exclamations regarding the hurt finger, and his wondering curiosity as to how he could have so injured himself, clearly indicating that there was no consciousness of pain until he had passed out from the influence of drug.

Yet none of us for a moment thought of applying for a patent covering the pain annihilating qualities of ether, as Morton about that time was doing, because no one comprehended the magnitude or importance of the phenomena. No one thought of utilizing that unconsciousness to suffering. It remained for Wells first to do that, and therein lies the essential quality of the discovery.

Sir Humphrey Davy inhaled nitrous oxide, as we boys did ether, and he had no more comprehension of the importance of the latent power inherent in the drug than we did in the ether frolics. Morton afterward recognised in ether the same qualities that Wells had first discovered in nitrous oxide, and is entitled to the credit of first presenting that to the world, as possessing properties already discovered and made public. Yet later, Simpson made the same discovery in chloroform, but neither of these were first in recognizing the qualities afterward called anæsthetic.

It would seem then, that to Wells belongs the honour of the primary discovery of anæsthesia. He administered the agent successfully for some years, and demonstrated it abroad. His first administration in Boston was a failure, because the boy to whom it was given cried out when a tooth was ex-

tracted, although he declared after his recovery that he felt no pain. Everyone who uses nitrous oxide at the present day knows that this is common enough. Yet it was sufficient to dishearten and chill the sensitive nature of Wells, so that he did not attempt another public exhibition, although he continued to use it in his private practice, as is proved by the testimony of many to whom nitrous oxide was administered for the extraction of teeth. It is cruel robbery to attempt to wrest from him the credit that belongs to him. But there is no fear that the attempt will prove permanently successful when all contemporaries have passed off the stage of action, and a generation shall have arisen that can weigh dispassionately all the testimony that can be gathered. Then true judgment will be rendered, and Wells will be universally hailed as the man to whom should be awarded the glory of making known to the world the wondrous fact that certain drugs, when properly administered, have the power to give immunity to pain, and thus to permit the performance of surgical operations for the preservation of life, that until this time had been impossible.

Dental Practitioner and Advertiser.

TO FILL UP ODD TIME.

By Dr. CUTTENDEN.

In the "American System of Dentistry," Vol. III., page 813, is given Dr. Keller's analysis of the principal dental amalgams; select the formula you wish, proceed as described in that work, using a crucible furnace. If you have not gas in your office, you can use a gasoline apparatus, which will do just as well. When the metals are fused and poured the ingot is taken apart. This you can put in the chuck of the lathe, file with a coarse file or turn into shavings if you prefer. I have paid for years 6 dols. per ounce for an amalgam, which is rich with gold, the same amalgam I can make for 1.40 dol. per ounce, or in other words I can melt a crucible full, which holds about $7\frac{1}{2}$ ounces, cast and file up in one day an amount which costs for the metals, 10.50 dols., for which I would have to pay 45 dols. to the trade, a saving of 34.50 dols., not bad for one day's work, and a rainy day at that.

CONSTITUTIONAL TREATMENT AS AN AGENT IN
DEVELOPING PERFECT TEETH.

By J. M. DUNN, D.D.S., Oakland, Cal.

The subject I present has particularly occupied my attention from the fact of some splendid results which I have obtained from constitutional treatment. During my practice of eleven years I have been frequently discouraged by vain attempts to arrest caries in very young permanent teeth. But few of us are called on to attend the little ones until they have lost their temporary teeth, and at times we are appalled at the destruction of the permanent teeth we meet with which have scarcely erupted. Can it be possible that there is no remedy to arrest the attack of disease on and destruction of these organs? And why is it not just as feasible to develop and make strong the teeth as well as the other organs and muscles? Strictly preventive treatment in arresting decay must, of course, be governed by circumstances. Many times our best efforts will be frustrated by the patient's neglect to carry out instructions, and the disappointment incurred tempts the enthusiastic and conscientious practitioner to cease his scientific endeavours and let things take their own course, after patching the teeth up as best he can. But having met with astonishing success in seemingly hopeless cases I have the courage to continue my efforts. I had notable success in a recent case of a girl of 6 years old, who came to me with the temporary teeth almost entirely gone, and with the molars about to erupt. I prescribed the use of lactophosphate of lime, a teaspoonful twice daily. After patient had consumed a ten-ounce bottle I would stop giving it from two to six weeks, and then resume. In this case all the teeth have erupted in excellent condition.

Again, how few of our patrons do we find whom we can impress with the understanding that systemic treatment is the proper thing. They consider that such treatment should be prescribed only by the physician, and that the dentist is "presuming a great deal" (as a physician expressed it) to suggest it, and therefore for this prejudice our patrons are not entirely to blame, since this has been their teaching. It is to a great extent the dentist's fault in not educating the public—and the physician, also—how to understand the proper care and development of the teeth. How many phy-

sicians understand the development of the teeth, and how these organs are maintained and nourished after development? How often do we see, day after day, the evils that follow from the ignorance of the physician on the subject of teeth. Not long since I met a physician suffering from Rigg's disease, who said he could not understand why the dental profession did not exert itself to discover a remedy!

We all concede that the first molar holds a very important position, erupting, as it does, nearly a year before the temporary teeth are shed. It has many duties to perform: to keep correct the occlusion of the jaws, do the masticating till the temporary set are shed and replaced by the permanent ones, and to keep the face in shape. When a case is presented to us with the first molar mostly gone, is it not supposable that those following may take the same course unless some preventive treatment is followed out? Is it not our duty to prescribe when we see unmistakable signs of the lack of inorganic matter in the teeth? From the 6th to the 17th year the growth of the body is very rapid, and as the bone of the body has the most exercise it absorbs most of the bone-making element from the food, and leaves the teeth in poverty row because of the lack of building material. The teeth also should have exercise, such as biting on tough substances, coarse food, etc.

As a developing agent I have used the syrup of lactophosphate of lime more than anything else; also hypophosphites in milk, or the lime salts combined with other agents, as circumstances require.

Pacific Stomatological Gazette.

CATAPHORESIS IN THE REMOVAL OF VITAL PULPS FOLLOWED BY IMMEDIATE ROOT FILLING.

By S. ELDRED GILBERT, D.D.S., Philadelphia.

My method of procedure is as follows: The rubber-dam being applied to the tooth to be operated on, the loose debris is removed and cotton saturated with a 25 per cent. solution of cocain is placed in the cavity; the electrode attached to the positive pole is now placed in direct contact with the cotton, where it must remain immovable till the pulp is

anæsthetised. The negative pole is either held in the patient's hand, or, what is better, applied to the cheek. The electrodes must remain stationary, as there will be a shock if the current is broken (whatever instrument is used). The indicator on the volt selector is gradually turned up till it reaches twenty-five volts, where it is allowed to remain till there is no sensation, when the current is broken. In turning on the current there should be no pain; the patient is told to give an indication just as the pain point is reached; it is allowed to remain till there is no sensation, then turned up as before, and so on till the desired point is attained. Should it be turned rapidly enough to give pain, turn it back a little, when the pain will immediately cease. The pulp being anæsthetized it is now ready for removal, which will be without pain in almost every case, and with but the slightest feeling in others. When possible, removal with the broach is preferred, but in many cases this is absolutely impossible. These roots are opened by means of Gates-Glidden drills and sulphuric acid till the operation is nearly completed (neutralizing with bicarbonate of soda). For finishing I prefer to use muriatic acid, then neutralize with Liq. soda chlorinate. (I find Dr. Barker's acid applicator, root dryer, and canal filler is very handy in these cases). With a cotton-wound broach an antiseptic is introduced into the canal, following with chloro-stopping (temporary stopping dissolved in chloroform to a creamy thickness). Then finish by inserting a temporary stopping cone. This is made by rolling temporary stopping between the thumb and fingers; several of these points of various sizes are kept ready for use. The root being permanently filled, the crown is finished with temporary stopping and allowed to remain for two weeks, and then permanently filled, or, after the root canals are filled, a permanent filling may be placed in the crown at once. I have treated a great many teeth in this manner, and not one has ever given the slightest trouble. For molars the first application will allow of the removal of the pulp from the largest canal without pain, but it will be found that usually on testing the remaining roots they are sensitive. The root in which there is no sensation is treated as before described, and filled. Cotton saturated with the cocain is again placed in the cavity, the current applied, which it will be found can be increased very rapidly, and in about five minutes the remaining canals are ready to be operated on. For teeth with single canals, including time after the dam is in place, opening, filling,

completing and removing of the rubber-dam averages forty-five minutes, and for molars an hour and a half. Sometimes it takes much less and sometimes a little longer. My greatest satisfaction is that I have no after-treatment, and that I can finish the tooth at one sitting, without pain, and know that there will be no trouble from soreness afterward.

Welch's Monthly.

INJECTIONS OF OSMIC ACID IN NEURALGIA.

FRANCK (*Centralblatt f. Inn. Med.*, April 10, 1897) recommends the use of osmic acid in obstinate cases of neuralgia, a remedy which has proved invaluable in his hands, as well as in those of several others quoted by him, especially in the worst cases. The injections produce a sharp pain which lasts but a few moments, apparently because the nerve fibres are destroyed by the action of the acid. No visible necrosis or ulceration follows its use. A one-per-cent. solution is employed in direct contact with the nerve in order to relieve the pain. This explains the fact that in some cases success was not obtained until several injections distributed over a period of from one to six weeks had been employed. For facial neuralgia it is advisable to begin with minute doses.

DIFFICULT PARTIAL IMPRESSIONS.

Dr. Homer Heberling says—Several weeks ago a lady presented desiring a partial upper denture. An examination of the oral cavity revealed a V-shaped arch with several sound teeth, posteriorly and anteriorly. When possible, he says, I prefer taking plaster impressions in partial cases, and I proceeded in the usual manner to get a plaster impression. The teeth were at unfavourable angles, seriously interfering with the work. After several unsuccessful attempts and spending considerable time in trying to patch together broken pieces, I thought upon the following method. That portion of the plaster which came out intact, viz., the palatal surface, fes-

tooning teeth lingually, and partially covering the ridge where teeth were absent, I replaced carefully in the impression-tray, flowing *very* soft plaster where the first impression had been imperfect. I next pressed the tray and plaster quickly into the arch, retaining it in position until the new plaster had set in. The cup was then easily removed, the new plaster fractured cleanly and in large pieces, some, however, remaining cemented to the original impression, making it a simple task to reunite the whole. The result was a perfect model from which I made a well-fitting plate.

Items of Interest.

DENTAL DECAY OBSERVED IN WILD ANIMALS WHILST IN CAPTIVITY.

Reported by GEORGE RANDORF, Berlin, Germany.

Drs. Charpentier and P. Stivenim presented an interesting paper before the National Dental Congress of Nancy. It is well known that the animals are not exempt from decay of the teeth, and Dr. Francis Jean has already reported a case of dental decay of the tusk of an elephant. It would be of great interest to know to what degree this decay exists among wild animals, and they have arrived at the conclusion that captivity tends to increase this decay. Although its appearance is rare among them, we should imagine it would be still rarer among those at liberty. In the Natural History Museum at Paris skulls of all animals are preserved, and they examined therein the jawbones of three thousand specimens. They found as a result of their examination, especially of caries, many anomalies of size, form, extent and number. As animals are never attacked with syphilis they knew that the eroded teeth were not the result of this disease.

Items of Interest.

They have a custom in Japan of blackening the teeth. It is a sign of matrimony. By means of a corrosive preparation the teeth of the betrothed damsel are made as black as ink, and they retain their dark colour during the whole lifetime of their owner, who, whenever she smiles, betrays to observers that she is married. Even when she is a widow no attempt is made to remove the matrimonial brand. It is said that the custom is becoming obsolete.

MANIPULATION OF HEAVY FOIL.

Dr. Gardner says—In manipulating heavy rolled foil it must not be forgotten that we are dealing with gold plate, not hammered foil, and our work should be done with a recognition of the physical properties of the material. Like all gold plate, it should be annealed to redness, as any heat below this does not develop the full degree of cohesiveness. Instead of making the gold harsh and hard, as with foil, the heat actually softens it; makes it more plastic. To use 60 and 120 numbers requires precision in manipulation, though perfect welding is accomplished by means of very light blows; each succeeding piece must be added to its predecessor without folding or wrinkling. Rolled foil is best adapted for use in spaces which have a narrow approach. When cut in narrow strips it may be carried to the depths of the cavity, and when the proper care is exercised be perfectly adapted. Another advantage possessed by it is its perfect welding under slanting blows.

International Dental Journal.

IMPROVED PORCELAIN BRIDGE.

The points in this bridge are, you are able to have 22c. gold caps on the bridge, and having a bar through the porcelain to strengthen it, its brightness and cleanliness makes it a satisfactory piece of work in the mouth. The caps are first made and a piece of platinum swaged to fit on the gum and extend up on the mesial and distal surfaces of the teeth that are capped. Then a cross of platinum or pure gold is soldered about the centre of the swaged piece and a platinum rod to brace it up, and it gives you something to solder the teeth to. After this, if a long piece, standards are soldered on and the body is put on. I recommend Close's body, as Downey's, compared to Close's, is like mud compared to concrete. I consider the bridge the strongest that can be made. Then you put on the gum; you can build on the inside and slope it up to where the gum commences. After this you put caps in the mouth and put porcelain piece in position, take out, invest and solder. You make a very strong and perfect joint, and, to my idea of bridge-work, it is perfection itself.

Stom. Gazette.

Dental News.

FRANCIS LEPPER, LIMITED.

Registered August 4, by Hilberys, 3, South-square, Gray's-inn, W.C., with a capital of £15,000 in £1 shares. Object, to enter into an agreement with Alice R. Lepper to acquire the business carried on by her at 56, Great Marlborough-street, London, and 51, Corporation-street, Manchester, and to manufacture, deal in, and sell dental instruments, dentists' furniture, false teeth, and all dental requisites. Table A mainly applies.

DEATH FROM NITROUS OXIDE.

Dr. H. A. HARE reports a death following the administration of nitrous oxide (*Therapeutic Gazette*, December 15th, 1896), illustrating the influence which nitrous oxide gas may have when administered to persons suffering from atheromatous blood vessels. A man between fifty and sixty years of age, visited a dentist who makes a specialty of administering nitrous oxide gas, to have a couple of teeth extracted. He had taken the gas on previous occasions without any trouble. On this occasion he took the ordinary quantity, his teeth were extracted and he rapidly returned to consciousness. He left the chair and walked to a wash stand to rinse his mouth. He then complained of numbness in his right hand which extended up his arm and to his leg and side. He was put on a sofa, where he became unconscious ; breathing was stertorous. In a few minutes he became absolutely insensible. Venesection and other measures were resorted to. He died twelve hours after taking the anæsthetic. The rise in the arterial pressure, produced by the gas, may cause rupture of a blood vessel in those having a tendency to apoplexy.

To renovate dirty wax ; Melt in water ; when cool, scrape the dirt from the under side ; melt again in pure water and add one tablespoonful of sulphuric acid when it comes to a boil.

SUDDEN DEATH FROM EXTRACTION OF A TOOTH.

An inquest was held on the 17th ult., by Mr. Hulme, coroner, touching the death of Ada Ann Hadland, of New Bank Street, Barbourne, who died suddenly on Monday.—Deceased, who was thirty years of age, on Saturday and Sunday suffered from toothache. On Sunday night she went to Mr. Corder, Barbourne, and asked him to take out a loose tooth. He did so, after which he left the room to get some water, and when he returned she was falling out of the chair. She was hysterical. He gave her a stimulant, and five minutes afterwards she seemed better. She was taken home in a cab, attended by Mr. Corder. She was then unconscious, but afterwards her condition became more favourable. She died on Monday morning. Mr. Jackson, surgeon, was, however, called in to see her.—Both medical men attributed death to syncope, brought on by excitement and the shock consequent upon having a tooth drawn.—The jury returned a verdict to that effect.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

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VOL. XL.

ORAL SURGERY.

By EDMUND W. ROUGHTON, B.S., M.D. (Lond.), F.R.C.S.
Eng.

DISEASES OF THE GLANDS.

XEROSTOMA.

In this affection the secretions of the salivary and buccal glands are greatly diminished or entirely suppressed. The tongue is red, dry and cracked, and the mucous membrane of the cheeks pale, smooth, shining and dry. Mastication, deglutition and articulation are rendered difficult and painful. As a rule, the general health is good.

Very little is known of the pathology of this disease. It is supposed to be due to some affection of the nerve centres controlling the salivary secretion. It is a rare condition, and is most often met with in women with neurotic tendencies.

Treatment. The galvanic current is the only therapeutic agent known to have a beneficial effect.

SALIVATION (PTYALISM).

Increased secretion of saliva is a constant symptom in most of the diseases of the mouth, especially mercurial and ulcerative stomatitis. It also occurs during teething i

infants, during examination of the mouth or throat, and during dental operations. It may result from any local irritation in the mouth, such as biting the tongue, taking irritating particles of food, or chewing tobacco. Certain drugs, such as mercury, iodine, copper and lead produce ptyalism. It is also a symptom of certain affections of the stomach and intestines, and is not unfrequent during pregnancy. It may result from any irritation of the trigeminal or glossopharyngeal nerves, or may be purely hysterical.

The increased secretion is accompanied by a dragging sensation in the region of the parotid glands and masseter muscles, and by a metallic taste in the mouth. The quantity of saliva secreted may amount to several pints during the day. Some of this is expectorated or runs out of the mouth irritating the skin of the lips and chin, and the rest of it is swallowed, often upsetting the function of the stomach and intestines, leading to anorexia, emaciation, etc.

The saliva is nearly always turbid, and may be viscid, or thin and watery; it is often very offensive. Its specific gravity is at first high, even as much as 1050, but later it sinks below normal, even as low as 1001. Its reaction may be acid, neutral, or alkaline.

The treatment consists in removing the cause, and prescribing astringent mouth washes.

PAROTITIS.

Inflammation of the parotid gland may result from injury, concretions in the duct of Stenson, foreign bodies, the effect of cold, or as a secondary affection after some injury or disease of the abdomen.

In most cases parotitis is idiopathic, and is due to infection by a specific micro-organism. *Idiopathic parotitis (mumps)* occurs chiefly in children from 5 to 15 years of age. It usually occurs in epidemics, but may occur sporadically; in

any case it is due to infection directly or indirectly from another person suffering from the same disease.

The period of incubation may vary from 3 to 21 days. The disease begins with pains about the ears, a feeling of tension when the mouth is opened and slight febrile symptoms. After two or three days the gland begins to swell and causes great pain in opening the mouth and in chewing. One or both sides may be affected; the swelling is limited above by the zygoma and below by the stylo-maxillary ligament; the ear seems raised and forced outwards, and the cheek swollen. The submaxillary and sublingual glands, and even the lymphatic glands and spleen may also become swollen. On the subsidence of the inflammation in one parotid, the other, if not already affected, becomes inflamed, and sometimes the testis, ovary or mamma. Usually only one testis is affected, sometimes both are involved; atrophy of the testis and impotence may result.

The *treatment* of an ordinary attack of mumps consists in keeping the patient indoors, giving a laxative, and in covering the part with cotton wool or a poppy fomentation.

Secondary or Metastatic Parotitis occurs most commonly as a sequel to typhoid fever, usually during the third or fourth week. It may also follow upon operations involving the abdominal cavity, or injuries of the generative organs.

The symptoms are at first the same as those of the idiopathic variety, but pain is not such a prominent symptom on account of the prostrate condition in which the patient usually is.

The swelling is generally very considerable. Suppuration frequently occurs and is accompanied by high temperature. As the pus forms, the swelling softens and the skin over it becomes red and glazed; after a few days the abscess bursts, as a rule upon the face, but sometimes in the external auditory meatus. The process of disintegration may spread from the parotid to the surrounding parts leading to suppuration of

the masseters and pterygoids, thrombosis of the adjacent veins and sometimes pyæmia. The facial nerve is often involved, causing paralysis of the muscles of expression.

The occurrence of suppurative parotitis is always serious, and adds to the gravity of the prognosis of the affection it complicates.

The *treatment* consists in early and free evacuation of pus, and the administration of stimulants.

(To be concluded.)

STATEMENT OF CONDITIONS

Recommended for adoption by Boards of Guardians, or of Management, in regard to the Appointment of Dental Officers.

(The following Recommendations have been received from the Local Government Board. We hope to touch more fully upon them in our next number.)

1. The officer appointed should be required :—

To attend at the school or other appointed place according to his agreement with the guardians or managers.

To inspect the teeth of all children admitted since his last visit.

From time to time, according to his agreement, to inspect the teeth of all the children in the school or workhouse as the case may be.

To attend duly and punctually at each visit upon each child requiring dental treatment, and upon any child who may be brought to him for treatment in the intervals of such visits.

To keep a record of his work, and to report the same to the guardians or managers, in a book to be provided by them for the purpose, under the following heads :—

Date.

Number of children inspected.

- „ temporary teeth extracted.
- „ permanent „ „
- „ teeth filled.
- „ scalings.
- „ other operations performed.

Any matters which the dental officer may deem necessary or desirable to bring to the notice of the guardians.

This book should ordinarily be kept at the school or work-house, and should be laid before the guardians or managers by the clerk at each meeting, and should be produced to the Inspectors of the Local Government Board when required.

2. The dental officer must be duly registered in accordance with the Statutes in that behalf (41 & 42 Vict. c. 33, 1878, and 49 & 50 Vict. c. 48, 1886), or if not so registered, by reason of any medical or surgical qualification exempting him from the obligation of registration as a dentist, the officer appointed shall produce satisfactory evidence that he holds a license in dental surgery from either of the following :—

The Royal College of Surgeons of England,
 „ „ „ Edinburgh,
 „ „ „ Ireland,

The Faculty of Physicians and Surgeons of Glasgow,
 or other approved authority.

3. The guardians or managers may pay a dental officer either by—

- (a) an inclusive salary, or
- (b) partly by salary, and partly by fees on a fixed scale for specified operations, provided that all payments for extractions shall be included in the salary assigned to the officer and shall not be made by fee.

4. If the dental officer attends at the school or work-house, it would be necessary that the guardians or managers should provide for his use a suitably equipped surgery, including a dental chair and a dental engine, and such other apparatus as may be necessary. It is desirable that they should also provide the requisite materials for fillings, and such special appliances as may be needed for mechanical treatment.

Local Government Board,
 July 1897.

British Journal of Dental Science.

LONDON, SEPTEMBER 15, 1897.

THE STUDENT.

In this our Educational Number we give, as is our custom, full information with respect to the educational facilities afforded by the various teaching and examining bodies in the British Isles having control of the various curricula under the General Medical Council. We should like to see a uniform standard of education and examination established for the United Kingdom, and hope that in fulness of time it may become an accomplished fact. In the meantime a most beneficial step towards that desired end has been accomplished, in that an Assessor—in the person of Mr. C. S. Tomes—has been appointed, whose reports upon the various examinations have been of the greatest value.

The general tendency of examinations is to become more searching and more practical. The Preliminary Examination has in recent years become larger in its scope, yet is now looked upon as being an insufficient test as to whether the Candidate has received a liberal education. More than a year ago a resolution was approved by the General Medical Council that the Education Committee be requested to consider whether the time had not come for erasing from the list of recognized preliminary examinations, the examination for a second-class certificate of the first or second division of the College of Preceptors. This has not yet been done, but the impression seems to be that a large number of rejections in the Professional Examinations is due to the low standard of preliminary education. The Council

accordingly represented to the various Examining Bodies, in General Education that they desired that the pass requirements should gradually be increased. The Educational Committee is now preparing a report which will be brought before the Council next November. This report will contain suggestions as to the steps which may be necessary for enforcing a higher and more uniform standard of preliminary education. If approved, the new rules will be brought into force in January, 1900. We heartily approve of this step. If our profession is to class with other liberal professions, our ranks must be filled with gentlemen who are not only adepts in their craft, but whose minds have been refined and sympathies widened by a sound and liberal education.

And not only in preliminary examinations are wider scope and greater stringency demanded by this age of progress. Our professional examinations are to be increased in scope and stringency. The new curriculum drawn up by the Committee of the Council has been approved by the various Bodies, any deviations from their suggestions being on the side of making the practical part of the course of study still more complete. The English College has ruled that it will demand success in no less than three examinations at various stages in the student's career before the English diploma can be won. Sir William Thomson—who by his subsequent observations at the British Dental Association's meetings Dublin seems to have "found salvation"—gave vent at the last meeting of the Council to some observations which were dealt with in our last issue. He did but echo the feelings of many practitioners of the old school who associate "dentistry pure and simple" with "tooth-drawing," and who cannot understand why dentists should require any knowledge of general anatomy, surgery and medicine. To all such critics we would say that while we have no wish to exceed the province of our specialty, yet at the same time we wish to raise that specialty to the highest pitch of excellence, and we feel sure that our endeavours will have the hearty cooperation of all broad-minded and enlightened men.

From the foregoing remarks the Dental Student will see that in entering our profession he will have no light task in fitting himself for the trust imposed upon him. Hard work lies before him, but he will have the encouragement of knowing that for the highly-skilled practitioner there is plenty of room, and that he will have the privilege of helping to still further raise the profession for which so much has been done by the pioneers of Dental Reform.

PURE AND SIMPLE DENTISTRY.—According to Sir WILLIAM THOMSON, the L.D.S. diploma is simply a qualification for drawing teeth. According to *The Chemist and Druggist*, also an authority on dentistry, the following is said to be the announcement in the window of a country druggist; “Besides selling our goods at store-prices, and sometimes less, we offer our customers the services of our resident dentist at reduced rates. Teeth extracted whilst you wait at 10½d. each, or 9s. the dozen.”

FALSE TEETH FOR PAUPERS.—At the meeting of the Medway Guardians on August 26, the case of an inmate of the workhouse named Grogin was brought up. It was explained that Grogin was a cornet-player, but had lost his front teeth, and consequently could not follow his avocation. It was suggested to provide Grogin with a set of false teeth, as other inmates had been provided with glass eyes, tooth-brushes, and tooth-powder. The Board declined to provide the false teeth, and told Grogin he must leave the house.

PHOSPHORESCENT ODOUR OF THE BREATH.—Dr. Meredith Young (M.O.H. Crewe) writing in the *British Medical Journal*, says “I have frequently observed a phosphorescent odour in the breath of adults, but I have invariably found this to be due to the imperfectly cleansing of artificial teeth

plates, and it is almost exclusively confined to those who wear non-metallic plates or artificial gums. There appears to be something in the composition of these plates which is acted upon by the products of food decomposition. In children, from infants a few days old to children 7 and 8 years old, I have frequently observed a strong sweet chloroform-like odour of the breath, and I am unable to account for this ; it appears in breast-fed children, children taking artificial foods of all sorts, and even in children living practically on adult diet ; is observable during sleep and when awake, at all seasons and under all conditions apparently. I have several times thought of asking the opinion of some of your readers on it, and should be glad to hear if anyone else has observed it. In both of my own children, aged 2 years and 3 months respectively, I frequently notice it."

THE USE OF POISONOUS SUBSTANCES IN DENTISTRY.—A Bill on this subject is to be submitted to the General Court of Massachusetts. The following are its provisions:—Section 1. The use of any of the amalgams of mercury as a filling for dental cavities, or the use of red or pink rubber plates which contain mercury or any of its compounds, is hereby prohibited. Section 2. Any dentist who shall violate the provisions of this Act shall be punished by a fine of not less than fifty or more than one hundred dollars, or by confinement for a period of three months in a county gaol, or both, for each and every offence.

TOOTHACHE REMEDY—

R.	Cocaini hydrochlor	...	...	gr. xv.
	Opii	...	...	gr. lx.
	Menthol	...	...	gr. xv.
	Althææ pulv.	...	...	gr. xlv.

M. Et div. in pellets weighing one-half grain each. Sig.: Place a pellet in cavity of the aching tooth.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester
during the month of AUGUST, 1897.

Number of Patients attended	749
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Number of Extractions	656
Number of Extractions under Anæsthetics	300
Gold Stoppings	32
Other Stoppings	94
Miscellaneous { advice, temporary fillings, sealings, dressings, &c.	136
Gold and Porcelain Crowns	7
Inlays	0
<hr/>	
Total	1974
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OSWALD TIDSWELL, *House Dental Surgeon.*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

Twelve Months (post free) 14s. od.

Post-office Orders to be made payable at the Langham Place Hotel Office, to G. E. Skliros, 289 & 291, Regent Street W. A single number sent on receipt of seven (penny) stamps.

I.—THE LICENSING CORPORATIONS.

Comparative Summary of Regulations for the Licence in Dental Surgery.

	Royal College of Surgeons, England *	Royal College of Surgeons, Edinburgh.	Faculty of Physicians and Surgeons, Glasgow.	Royal College of Surgeons, Ireland.
1—PRELIMINARY EXAMINATION.....	Compulsory on all who commenced their Professional Education after July 22nd, 1878. Must be registered as a Dental Student at the office of the General Medical Council, 299, Oxford St., London, W.	Compulsory on all who commenced their Professional Education after July 22, 1878.	Compulsory on all who commenced their Professional Education after August 1st, 1878.	All Examinations in General Education recognised by the General Medical Council.
2—Age at which the Candidate may present himself	Twenty-one.	Twenty-one.	Twenty-one.	Any age, but diploma cannot be granted until he is twenty-one.
3—DURATION OF PROFESSIONAL EDUCATION.....	Four years subsequent to registration.	Four years.	Four years.	Four years.
4—COURSES OF LECTURES, &c., to be attended at a recognized School:—				
Anatomy	One course.	One Winter course.	One course of 6 months.	[Anatomy One course with Dental
Physiology	Ditto.	One course of 6 months.	One course of 6 months.	One course with Dental
Practical Physiology	Ditto.	...	...	One course. [Physiology
Surgery	Ditto.	One Winter course.	One course of 6 months.	One course.
Medicine	Ditto.	Ditto.	Ditto.	Ditto.

Royal College of Surgeons, England.*	Royal College of Surgeons, Edinburgh.	Faculty of Physicians and Surgeons, Glasgow.	Royal College of Surgeons, Ireland.
Chemistry	Instruction.	One course of 6 months.	One course.
Materia Medica	Instruction.	Ditto.	One course.
Dissections and Demon- strations	Twelve months.	Twelve months.	Two courses.
Practical Chemistry and Metallurgy	Instruction.	One course of 3 months.	1 course. Three months.
Practice of Surgery	Two Winter Sessions.	One course of 6 months.	
Clinical Lectures in Gen- eral Hospitals	Two Winter Sessions.*	Two courses of 12 months	One year.
Dental Anatomy and Phy- siology	Two courses.	24 Lectures (Six months.)	One course.
Dental Surgery and Path- ology	Ditto.	20 Lectures.	Two courses.
Metallurgy	One course.	... [trations	Two courses.
Dental Mechanics	Two courses.	Not less than 12 Demons- trations	Three Years under a Regis- tered Dentist.
Practical Instruction in Mechanical Dentistry...	Three years under a com- petent Practitioner, all of which may be pre- vious to Registration.	Three years under a Regis- tered Dental Practition- er.	
Practice of Dental Surgery in a recognized Dental Hospital, or in the Dental Department of a recog- nized General Hospital	Two years. £10 10s. Candidates who commence after Oct. 1, 1896, shall pay £15 15s.	Two years. £10 10s. for Candidates registered before Oct., '96, Candidates registered af- ter that date, £15 15s.	Two years. £21.
5—FEE	1st Jan. 1900, the fee will be raised to £21.		
6—LEAST period during which unsuccessful Can- didates are referred to their studies	Six months, subject to the decision of the Board.	Six months.	Three months.

PARTICULARS OF EXAMINATION

(A) Written:

On General Anatomy and Physiology, General Pathology and Surgery, Dental Anatomy and Physiology, and Dental Pathology and Surgery.

(B) Practical:

(1) On the treatment of Dental Caries, and may be required to prepare and fill cavities with Gold or Plastic filling or material, or to do any other operation in Dental Surgery.

(Candidates must provide their own instruments.)

(2) On the Mechanical and Surgical treatment of the various irregularities of children's teeth.

(3) On Mechanical Dentistry.

(C) Oral.

Comprises the several subjects included in the curriculum of professional education, and is conducted by the use of preparations, casts, drawings, &c.

May and November.

Candidates who register after Jan. 1, '97 are subject to new Regs., which can be obtained on application.

Mr. F. G. HALLETT, Examination Hall, Victoria, Embankment, London, W.

8—DATES OF EXAMINATIONS

For further information apply to

Written and Oral:

First Part.—Anatomy, Physiology, Chemistry, Physics.

Second Part.—Surgery, Medicine, Therapeutics, and special subjects, of Dental Anatomy and Physiology, Dental Surgery & Pathology, and Dental Mechanics. Registered Medical Practitioners are examined on the special subjects only. Practical Examination given in a Dental Hospital in Dental Surgery, Pathology & Mechanics.

* Students who began before July, 1895, are not required to take more than six months.

First examination.—

Monday, April 25, 1898,
Monday, July 25, 1893.

Second exam. on Thursday following.

JAS. ROBERTSON, Solicitor,
Clerk of College,
48, George Square, Edin.

Written, Oral & Practical:

1st part.—Anatomy, Physiology, Chemistry, and Metallurgy.

Second Part.—Surgery, Medicine, Materia Medica, and special Dental subjects.

Practical Examination at a Dental Hospital. Candidates are to bring all the dental instruments and materials they may think necessary, with the exception of extracting Instruments.

Also practical Examination in Mechanical Dentistry.

1897 October 5—9.

1898 April 5—9.

ALEX. DUNCAN, Esq.,
Faculty of Physicians
and Surgeons,
Glasgow.

Written and Oral:

On all the subjects of the Curriculum.

Dental Surgery, and Dental Mechanics.

SINE CURRICULO:—

Candidates in practice before July, 1878, and whose names are on a Dental Register are admitted to the examination *Sine Curriculo*. Fee £26 5s.

Feb. May & Nov.

The Registrar,
Royal College of
Surgeons, Dublin.

* The above Regulations apply only to Candidates who registered as Dental Students before the 1st of January, 1897.

II. PRELIMINARY EXAMINATION.

REGULATIONS OF THE GENERAL MEDICAL COUNCIL.

No person shall be allowed to be registered as a Medical or Dental Student unless he shall have previously passed (at one or more Examinations) a preliminary Examination in the subjects of General Education as specified in the following List :—

- (a) English Language, including Grammar and Composition.
- (b) Latin, including Grammar, Translation from specified authors, and translation of easy passages not taken from such authors.
- (c) Mathematics, comprising (a) Arithmetic; (b) Algebra, as far as Simple Equations, inclusive; (c) Geometry, the subject matter of Euclid, Books I., II., and III., with easy deductions.
- (d) One of the following optional subjects :—
(a) Greek, (b) French, (c) German, (d) Italian, (e) any other Modern Language, (f) Logic.

List of Examining Bodies whose Examinations in General Education are recognized by the Medical Council as qualifying for registration as Medical or Dental Student.

I. UNIVERSITIES IN THE UNITED KINGDOM.

UNIVERSITY OF OXFORD :—

1. Junior Local Examinations; (Certificate to include all the required subjects at one time.)
2. Senior Local Examinations (Certificates to include the required subjects.)
3. Responsions (Certificate to be supplemented by others showing that the required mathematical subjects have been passed in).
4. Moderations (Certificates to include the required subjects.)
5. Final Examination for a degree in Arts.

UNIVERSITY OF CAMBRIDGE :—

6. Junior Local Examinations: (Certificate to include all the required subjects at one time.)
7. Senior Local Examinations; (Certificates to include the required subjects.)
8. Higher Local Examinations (Certificates to include the required subjects).
9. Previous Examination (Certificates to include the required subjects).
10. General Examination (Certificates to include the required subjects.)
11. Final Examination for a Degree in Arts.

UNIVERSITY OF DURHAM :—

12. Examination for Certificate of Proficiency (Certificate to include all the required subjects at one time).
13. Preliminary Examination in Arts for Graduation in Medicine and Science (Certificate to include the required subjects).
14. Final Examination for a Degree in Arts.

UNIVERSITY OF LONDON:—

15. Matriculation Examination (Certificate to include the required subjects).
16. Final Examination for a Degree in Arts or Science.

VICTORIA UNIVERSITY:—

17. Preliminary Examination (Certificate to include all the required subjects at one time).
18. Entrance Examination in Arts, (Certificate to include all the required subjects at one time).
19. Final Examination for a Degree in Arts or Science.

UNIVERSITY OF WALES:—

20. Matriculation Examination (Certificate to include all the required subjects at one time).
21. Final Examination for a Degree in Arts.

UNIVERSITY OF EDINBURGH:—

22. Junior Local Examination (Certificate to include all the required subjects at one time).
23. Senior Local Examination (Certificates to include the required subjects).
24. Preliminary Examination for graduation in Medicine and Surgery (Certificate to include the required subjects).
25. Preliminary Examination for Graduation in Arts or Science (Certificate to include the required subjects).
26. Final Examination for a Degree in Arts or Science.

UNIVERSITY OF ABERDEEN:—

27. Junior Local Examination (Certificate to include all the required subjects at one time).
28. Senior Local Examination (Certificates to include the required subjects).
29. Preliminary Examination for Graduation in Medicine and Surgery (Certificate to include the required subjects).
30. Preliminary Examination for Graduation in Arts or Science (Certificate to include the required subjects).
31. Final Examination for a Degree in Arts or Science.

UNIVERSITY OF GLASGOW:—

32. Preliminary Examination for graduation in Medicine and Surgery (Certificate to include the required subjects).
33. Preliminary Examination for Graduation in Arts or Science (Certificate to include the required subjects).
34. Final Examination for a Degree in Arts or Science.

UNIVERSITY OF ST. ANDREWS:—

35. Preliminary Examination for graduation in Medicine and Surgery (Certificate to include the required subjects).
36. Preliminary Examination for Graduation in Arts or Science (Certificate to include the required subjects).
37. Final Examination for a Degree in Arts or Science.
38. Final Examination for the Diploma of L.L.A.

UNIVERSITY OF DUBLIN :—

39. Public Entrance Examination (Certificate to include the required subjects.)
40. Examination for the First, Second, Third, or Fourth Year in Arts (Certificate to be signed in the approved form by the Medical Registrar of the University).
41. Final Examination for a Degree in Arts.

ROYAL UNIVERSITY OF IRELAND :—

42. Matriculation Examination (Certificate to include the required subjects).
43. Final Examination for a Degree in Arts or Science.

OXFORD AND CAMBRIDGE SCHOOLS' EXAMINATION BOARD :—

44. Lower Certificate (to include all the required subjects at one time.)
45. Higher Certificate (to include the required subjects).

II.—MEDICAL LICENSING BODIES.

ROYAL COLLEGES OF PHYSICIANS AND SURGEONS IN IRELAND.—

- *46. Preliminary Examination (Certificate to include all the required subjects at one time).

III.—EDUCATIONAL BODIES OTHER THAN UNIVERSITIES.

COLLEGE OF PRECEPTORS :—

47. Examination for a First Class Certificate or Second Class Certificate of First or Second Division (to include all the required subjects at one time).
48. Preliminary Examination for Medical Students (Certificate to include all the required subjects at one time).

SCOTCH EDUCATION DEPARTMENT :—

49. Examination for Lower Grade Leaving Certificate (to include all the required subjects at one time.)
50. Examinations for Higher Grade or Honours Leaving Certificate (to include the required subjects).

EDUCATIONAL INSTITUTE OF SCOTLAND :—

51. Preliminary Medical Examination (Certificate to include all the required subjects at one time).

INTERMEDIATE EDUCATION BOARD OF IRELAND :—

52. Junior or Middle Grade Examination (Certificate to include all the required subjects at one time).
53. Senior Grade Examination (Certificate to include the required subjects).

* The Council has recommended that this Examination be discontinued.

IV.—INDIAN, COLONIAL, AND FOREIGN UNIVERSITIES AND COLLEGES.

. (a) No Certificate from the Bodies in the foregoing Section (iv.) is accepted unless it shows that the Examination has been conducted by or under the authority of the Body granting it, includes all the subjects required by the GENERAL MEDICAL COUNCIL, and states that all the subjects of Examination have been passed in at one time; and copies of the form of the required Certificate are supplied by the REGISTRAR of the COUNCIL for the purpose.

(b) In the case of Natives of India or other oriental countries, whose vernacular is other than English, an Examination in a classic oriental language may be accepted instead of an Examination in Latin.

REGISTRATION OF DENTAL STUDENTS.

Every Dental Student shall be registered in the manner hereinafter prescribed by the General Medical Council.

The Registration of Dental Students shall be carried on at the Medical Council Office, in London, in the same manner as the existing Registration of Medical Students—as hereinbefore set forth—and subject to the same regulations as regards Preliminary Examinations, but in the case of Dental Students Professional Study may commence by pupilage with a Registered Dental Practitioner.

Students who commenced their professional education by apprenticeship to Dentists entitled to be registered, or by attendance upon professional lectures, before July 22nd, 1878, (when Dental Education became compulsory,) shall not be required to produce evidence of having passed a Preliminary Examination.

Candidates for a Diploma in Dental Surgery shall produce certificates of having been engaged during four years in Professional Studies, and of having received three years' instruction in Mechanical Dentistry from a registered Practitioner.

One year's *bona fide* apprenticeship with a registered Dental Practitioner, after being registered as a Dental Student, may be counted as one of the four years of professional Study.

The three years of instruction in Mechanical Dentistry, or any part of them, may be taken by the Dental Student either before or after his registration as a Student; but no year of such mechanical instruction shall be counted as one of the four years of Professional Study unless taken after registration.

III. EDUCATIONAL BODIES.

LONDON.

DENTAL HOSPITAL OF LONDON, AND LONDON
SCHOOL OF DENTAL SURGERY,
LEICESTER SQUARE.

DENTAL AND MEDICAL OFFICERS.

Consulting Physician :—

Sir RICHARD QUAIN, Bart., F.R.S., M.D., F.R.C.P., LL.D.

*Consulting Surgeon—*CHRISTOPHER HEATH, F.R.C.S.

Consulting Dental Surgeons:—

T. ARNOLD ROGERS, M.R.C.S., L.D.S.

J. SMITH TURNER, M.R.C.S., L.D.S.

Dental Surgeons.

LEONARD MATHESON, L.D.S.

E. LLOYD WILLIAMS, M.R.C.S., L.R.C.P., L.D.S., L.S.A.

W. B. PATERSON, F.R.C.S., L.D.S.

W. H. WOODRUFF, L.D.S.

J. F. COLYER, M.R.C.S., L.D.S.

Assistant Dental Surgeons.

A. CLAYTON WOODHOUSE, M.R.C.S., L.D.S.

C. F. RILOT, M.R.C.S., L.D.S.

H. BALDWIN, M.R.C.S., L.D.S.

H. LLOYD WILLIAMS, M.R.C.S., L.D.S.

W. H. DOLAMORE, L.R.C.P., M.R.C.S., L.D.S.

PERCY SMITH, L.R.C.P., M.R.C.S., L.D.S.

G. HERN, L.R.C.P., M.R.C.S., L.D.S.

J. G. TURNER, L.R.C.P., F.R.C.S., L.D.S.

RUSSELL BARRETT, L.R.C.P., M.R.C.S., L.D.S.

ASHLEY DENSHAM, L.R.C.P., M.R.C.S., L.D.S.

N. G. BENNETT, B.A., B.C. Cantab., L.D.S.

D. P. GABELL, L.R.C.P., M.R.C.S., L.D.S.

Anæsthetists.

W. DUDLEY BUXTON, M.D., B.S. Lond., M.R.C.P. Lond.

FREDERIC W. HEWITT, B.A., M.D. Cantab.

CARTER BRAINE, F.R.C.S.

HENRY DAVIS, M.R.C.S., L.S.A.

Assistant Anæsthetists.

GEORGE ROWELL, F.R.C.S.

E. A. BRIDGER, M.D.

R. T. BAKEWELL, M.B., Lond., L.R.C.P., M.R.C.S.

H. HILLIARD, L.R.C.P., M.R.C.S.

Demonstrators.

H. J. STEVENS, L.D.S.

W. S. NOWELL, M.D. Oxon., L.D.S.

R. HERSHELL.

H. W. C. AUSTEN, M.B., M.S., L.R.C.P., M.R.C.S., L.D.S.

Medical Tutor—D. P. GABELL, L.R.C.P., M.R.C.S., L.D.S.*Curator of Mechanical Laboratory.*

E. W. FLETCHER.

Demonstrations.—Demonstrations will be given every morning during the early part of each Session; and at the end of the Course those Gentlemen who have attended the Demonstrations to the satisfaction of the Staff, will be permitted to perform operations at the Hospital under the supervision of the Medical Officers and the House Surgeon.

Dresserships for Cases of Extraction.—The appointments are held for one month, and consist of six senior Dresserships for extractions under anæsthetics and eighteen Junior Dresserships for ordinary extractions.

The Senior Dressers will be selected from those pupils only who have entered fully both to the practice and lectures of this Hospital, and also to the Course required by the College of Surgeons for the Licence in Dental Surgery at one of the General Hospitals.

A new Mechanical Laboratory has been fitted up and opened in which Demonstrations are given by the Lecturer on Mechanical Dentistry, on Continuous Gum Work, Making Obturators, and the Mechanical Treatment of Acquired and Congenital Cleft Palate, Pivoting, Bridge and Bar Work, &c., and the Students are enabled to make plates for the treatment of Irregularities and of Cleft Palate.

The Hospital is lighted throughout by electricity. The New Mechanical Laboratory is now open. The Laboratory is carefully fitted with all the requirements of a modern Dental Laboratory, and is lighted with Electric Light for foggy weather. Each bench is also well lighted by daylight. The workroom is under the superintendence of A. J. WATTS, L.D.S.I., who will attend daily from 9 a.m. to 6 p.m. to give practical instructions to students.

The WINTER SESSION will commence on October 1st, 1896.

The SUMMER SESSION will commence 1st May, 1897.

LECTURES.

Dental Surgery and Pathology.—Mr. STORER BENNETT.

Dental Anatomy and Physiology (Human and Comparative).—

Mr. CHARLES TOMES, F.R.S.

Mechanics of Dentistry.—Mr. E. LLOYD WILLIAMS.

Metallurgy in its application to Dental Purposes.—Dr. FORSTER MORLEY.

MEDICAL TUTOR.

The Medical Tutor attends four days in the week, from 5 to 7 p.m., for two months previous to the Annual Examinations. His classes are open to all Students, and are intended to assist those who are preparing for their examinations at the College of Surgeons; generally speaking, to guide and direct the studies of the pupils, and prepare them in the subjects for the Examinations.

FEES.

Fee for the Special Lectures and Hospital Practice required by the Curriculum, £50 in one payment, or 50 Guineas in two yearly instalments.

An extra fee of seven guineas will be payable for every extra six months' Hospital Practice.

All fees are payable on day of entry.

FEES FOR SINGLE COURSES.

						£	s.	d.
Dental Anatomy and Physiology,	One Course	...	...	...	...	5	5	0
"	Two Courses	...	...	...	...	8	8	0
Dental Surgery,	One Course	...	...	...	...	5	5	0
"	Two Courses	...	...	...	...	8	8	0
Dental Mechanics,	One Course	...	...	...	...	5	5	0
"	Two Courses	...	...	...	...	8	8	0
Metallurgy,	One Course	...	...	...	...	5	5	0
"	Two Courses	...	...	...	...	8	8	0

Qualified Medical Men or Gentlemen holding Foreign Diplomas to practise in their native country, can receive six months' practical instruction in the Hospital, fee 20 guineas.

The Medical Committee reserve to themselves the right to refuse any such candidates' application.

Students who perform Operations for Filling Teeth must provide their own Instruments for the same, the proximate cost of which is £25; a list can be had on application, but "The Kit" has been very carefully selected with a view to efficiency, and is well adapted for use in future practice.

Further particulars may be obtained on application to the Dean, who attends at the Hospital every Wednesday from 10 a.m. to 12 noon.

PRIZES.

The Prize-day is held in July.

1. A Scholarship of the value of £20 has been founded by Sir Edwin Saunders, and will be awarded at the close of each Summer Session.

2. Prizes are awarded by the Lecturer for the best examinations in the subjects in their respective courses, at the end of the Summer and Winter Sessions.

3. Prize in Operative Dentistry, in the competition for which each candidate is entrusted with the care of a mouth, which he shall, if not impracticable, set thoroughly in order.

4. A prize of the value of five guineas is also given by Messrs. Ash & Sons for the best essay on a surgical subject connected with the mouth.

Note.—The Medical Committee have resolved "that" the holder of the Saunders Scholarship be admitted without additional fee to the extra year of Hospital Practice."

The Dean requests that all communications relating to the Medical School may be addressed to him at the Hospital, where he will attend in the afternoons, from Sept. 28th to Oct. 3rd inclusive, from 5 till 6 o'clock, and on Wednesday mornings from 10.30 till 12.

MORTON SMALE, M.R.C.S., L.D.S., L.S.A., *Dean.*

NATIONAL DENTAL HOSPITAL AND COLLEGE,
GREAT PORTLAND STREET, W.

FOUNDED 1861.

HOSPITAL STAFF.

Consulting Physician.

Sir W. H. BROADBENT, Bart., M.D., F.R.C.P.

Consulting Surgeon.

CHRISTOPHER HEATH, F.R.C.S.

Consulting Dental Surgeon.

SIR EDWIN SAUNDERS, F.R.C.S.

Hon. Visiting Physician.

JAMES MAUGHAN, M.D.

Hon. Visiting Surgeon.

E. W. ROUGHTON, F.R.C.S. Etc.

Dental Surgeons.

Monday	...	F. HENRI WEISS, L.D.S. Eng.
Tuesday	...	ALFRED SMITH, L.D.S. Eng.
Wednesday	...	MARCUS DAVIS, L.D.S. Eng.
Thursday	...	T. G. READ, L.D.S. Eng. D.M.D.
Friday	...	W. RUSHTON, L.D.S. Eng.
Saturday	...	C.W. GLASSINGTON, M.R.C.S., L.D.S. Edin.

Assistant Dental Surgeons.

Monday	...	WILLOUGHBY WEISS, L.D.S. Eng.
Tuesday	...	EDGAR BEVERLEY, L.D.S. Eng.
Wednesday	...	S. F. ROSE, L.D.S. Eng.
Thursday	...	J. W. PARE, M.D., L.D.S. Eng.
Friday	...	W. H. WHEATLEY, L.D.S. Eng.
Saturday	...	H. J. RELPH, L.D.S. Eng.

Anæsthetists.

Monday	...	G. B. FLUX, M.D.
Tuesday	...	C. E. A. MACLEOD, F.R.C.S.,
Wednesday	...	C. J. OGLE, M.R.C.S., L.S.A.
Thursday	...	G. EVERETT NORTON, M.R.C.S., L.S.A.
Friday	...	JAMES MAUGHAN, M.D.
Saturday	...	HAROLD LOW, M.A., M.B. Camb.

Demonstrator—HUBERT MOORE, L.D.S. Eng.

House Surgeons.

L. H. CANTON, L.D.S. Eng. ; A. B. POUNDALL, L.D.S. Eng.

LECTURERS.

Dental Anatomy and Physiology—J. W. PARE, M.D. Edin., L.D.S. Eng.
Dental Surgery and Pathology—A. HOPEWELL SMITH, M.R.C.S., L.R.C.P.,
Dental Mechanics—HARRY ROSE, L.D.S. Eng. [L.D.S. Eng.
Dental Metallurgy—A. B. GRIFFITHS, F.R.S. Edin., Ph.D., F.I.C., F.C.S.
Surgery of the Mouth—E. W. ROUGHTON, M.D. Lond. F.R.C.S. Eng.
Operative Dental Surgery—GEO. CUNNINGHAM, M.A., L.D.S. Eng., D.M.D.
Dental Materia Medica—CHAS. W. GLASSINGTON, M.R.C.S., L.D.S. Edin.
Elements of Histology—J. MAUGHAN, M.D.
Dental Histology—A. HOPEWELL SMITH, M.R.C.S., L.R.C.P., L.D.S. Eng.

At present the Hospital is open for the reception of patients every week-day, from 9 o'clock till 11 o'clock a.m. Work is continued till 2 o'clock p.m.

The accommodation and fittings are in accordance with the latest requirements for efficient teaching in all branches of the Science and Art of Dental Surgery.

The Conservation Room, with space for sixty chairs, is well lighted and warmed and ventilated after approved methods.

Other large rooms are arranged as a Mechanical Laboratory, Special Demonstration Room, Students' Common Room, &c.

There are also a Metallurgical Laboratory, Library and Museum. The Waiting Rooms, Extraction Rooms and Lecture Hall are on the ground floor.

The building is lighted throughout by electricity, and there is also a current for motors in the Stopping Room.

Each Student on entering the School passes through a preliminary course under the care of a Demonstrator, and all the members of the Staff take part in chair-side teaching, besides giving special demonstrations.

Dresserships in the Extraction Rooms.

These appointments are re-arranged every two months. The respective dressers for each day are required to be in attendance from 9 o'clock till the conclusion of the practice; and they will be under the direction of the Dental Surgeons of the day, and of the House Surgeon.

Clinical Lectures and Demonstrations.

Each medical officer will give clinical lectures, when opportune, during the ensuing year. Clinical lectures will also be given from time to time on cases of special interest; and also demonstrations upon the preparing and filling of cavities and other operations upon the teeth and contiguous parts.

The Hon. Visiting Physician and Surgeon give Demonstrations weekly, on cases of Oral Surgery, Anæsthetics, Cardiac, and Pulmonary lesions, and a member of the anæsthetic staff gives a course of lectures.

Attendance and Examination of Students.

A register is kept of the attendance of students at the Hospital Practice and lectures. An attendance of full two years at Hospital practice is required by the College of Surgeons of England; and no schedule will be signed for any lectures of which less than two-thirds have been attended. Class examinations are held frequently during the several courses, to test the progress and attention of the pupils; and at the end of each course of lectures a written examination is held, in accordance with the requirements of the College of Surgeons. An insufficient attendance at lectures disqualifies the student for receiving any prize of that year.

Tutorial classes are held to prepare for the final examinations, students who have, at this school, complied with the Dental portion of the Curriculum.

A proposal is under consideration for admitting a limited number of pupils to the Mechanical Laboratory for the three years' training.

LECTURES.

WINTER SESSION, COMMENCING ON MONDAY, OCT. 4th, 1897.

Dental Anatomy and Physiology, by J. W. Pare, M.D. Edin., L.D.S.E. On Tuesdays and Thursdays, at 5 p.m., during October, November, and December.

Operative Dental Surgery, by George Cunningham, M.A., D.M.D., L.D.S. Eng. On Mondays, at 6 p.m., during October, November and December (**Free** to Students of the Hospital and College.)

Dental Materia Medica and Therapeutics, by Charles W. Glassington, M.R.C.S., L.D.S. Edin. On Tuesdays, at 7.30 p.m. during October, November and December. (Free to Students of the College).

Dental Metallurgy, by A. B. Griffiths, F.R.S. Edin., Ph. D., F.I.C., F.C.S. On Tuesdays, at 7.30 p.m., during January, February, and March.

Dental Mechanics, by Harry Rose, L.D.S. Eng. On Mondays at 7 p.m., during January, February and March.

SUMMER SESSION, 1898.

Dental Surgery and Pathology. By A. HOPEWELL SMITH, L.R.C.P., M.R.C.S., L.D.S. Eng. On Mondays and Thursdays, at 6 p.m., during May, June, and July.

Elements of Histology, by James Maughan, M.D., L.R.C.P., M.R.C.S. On Mondays and Thursdays, at 12.30 p.m., during May, June, and July. (Free to students of the College.)

Surgery of the Mouth. E. W. ROUGHTON, M.D. Lond., F.R.C.S. Eng. On Mondays at 5 p.m. during May, June, and July.

FEES.

Total Fee for the Special Lectures and Hospital Practice required by the Curriculum, £40.

Fee for the two years' Hospital Practice required by the Curriculum, £20.

PRIZES.

An Entrance Exhibition of the value of £15 is open for competition at the commencement of each Summer and Winter Session, after an Examination in the following Subjects:—

Physiology. (The Functions of Respiration, Circulation and Digestion.) Examiner—JAMES MAUGHAN, M.D.

Osteology. (Bones of the head.) Examiner—E. W. ROUGHTON, F.R.C.S.

Chemistry. Examiner—A. B. GRIFFITHS, F.R.S. Edin., Ph. D., F.I.C., F.C.S.

Dental Mechanics. (Theoretical and Practical). Examiners—HARRY ROSE, L.D.S. Eng., W. R. HUMBY, L.D.S., Eng.

Prizes are open for competition among the students of the Colleges, at the end of the Course of Lectures.

Certificates of Honour will be awarded to those Students who show superior proficiency in any of the classes.

The Rymer Gold Medal for General Proficiency, value £5, will be awarded annually to the most distinguished Student of the year. His general conduct and attendance must have been in every respect satisfactory. At the time of the special examination for the Rymer Medal, the Student must not hold any qualification. The Medal will be awarded on the understanding that the Student completes the Dental Curriculum.

The Ash Prize, value £3 3s. in cash for the best Thesis on a subject in Dental Surgery.

The Dean attends the Hospital on Tuesday mornings at 11 a.m.

The public Distribution of Prizes will take place during the Winter Session

GUY'S HOSPITAL DENTAL SCHOOL.

The Winter Session will begin on October 4th, and end on March 31st.

THE STAFF OF THE DENTAL SCHOOL.

Dental Surgeons.

F. NEWLAND-PEDLEY, F.R.C.S., L.D.S. Eng.
W. A. MAGGS, L.R.C.P., M.R.C.S., L.D.S. Eng.
J. H. BADCOCK, L.R.C.P., M.R.C.S., L.D.S. Eng.

Assistant Dental Surgeons.

R. WYNNE ROUW, L.R.C.P., M.R.C.S., L.D.S.E.	A. E. BAKER, L.R.C.P., M.R.C.S., L.D.S.E.
H. L. PILLIN, L.D.S.E.	M. F. HOPSON, L.D.S.E.

Demonstrators in Practical Dentistry.

J. B. PARFITT, L.R.C.P., M.R.C.S., L.D.S. Eng.	J. L. PAYNE, L.D.S. Eng. E. C. DIMOCK, L.D.S. Eng.
W. R. WOOD, L.R.C.P., M.R.C.S.,	

Anæsthetists.

J. F. W. SILK, M.D.	W. J. SCOTT, M.B., B.S.
F. W. COCK, M.D., M.S.	C. J. OGLE, M.R.C.S., L.S.A.
H. F. LANCASTER, M.D.	F. J. STEWARD, M.B., F.R.C.S.

LECTURES AND DEMONSTRATIONS.

WINTER SESSION.

<i>Dental Surgery</i>	MR. NEWLAND-PEDLEY.
<i>Dental Anatomy and Physiology</i> ...	MR. MAGGS.
<i>Metallurgy</i>	MR. GROVES, F.R.S.

SUMMER SESSION.

<i>Operative Dental Surgery</i>	MR. BADCOCK.
<i>Dental Mechanics</i>	MR. WYNNE ROUW.
<i>Dental Microscopy</i>	MR. BAKER.
<i>Demonstrator of Dental Mechanics</i>	MR. PILLIN.

An Open Entrance Scholarship in Arts, of the value of £30, is offered for competition annually in the month of September. All particulars relating to the examination may be obtained upon application to the Dean.

Three Prizes, of the aggregate value of £35, are awarded annually.

Appointments. The following appointments are allotted to Dental Students according to merit ; Three Dental House-Surgeons, two Assistant Dental House-Surgeons, one Assistant Demonstrator of Dental Microscopy, and six Demonstrators in the Conservation Room.

The connection of this School with Guy's Hospital Medical School enables Candidates for the L.D.S. Eng., to obtain at one institution the entire curriculum required by the Examining Board, an advantage which cannot be obtained elsewhere in London.

Preparation Classes are held before each examination in both the Special and the General Subjects of the curriculum.

A Prospectus, containing full particulars as to Fees, Lectures, Course of Study advised, the Residential College, &c., may be obtained on application to the Dean.

Dr. LAURISTON SHAW, Guy's Hospital, S.E.

THE VICTORIA DENTAL HOSPITAL OF MANCHESTER, DEVONSHIRE STREET, ALL SAINTS.

Consulting Physicians :

HENRY SIMPSON, M.D., M.R.C.S. | D. J. LEECH, M.D., F.R.C.P.

Consulting Surgeons :

E. LUND, F.R.C.S. | T. JONES, F.R.C.S.
F. A. HEATH, M.R.C.S. | J. HARDIE, F.R.C.S.

Consulting Dental Surgeons.

H. CAMPION, M.R.C.S. | G. W. SMITH, M.R.C.S.
L. DRESCHFELD, L.D.S.I.

Dental Surgeons.

Monday Morning	I. RENSHAW, L.D.S.I. ; D. HEADRIDGE, L.D.S. Eng.
Monday Evening	W. HEADRIDGE, L.D.S.I. ; T.E. SHERRATT, L.D.S. Eng.
Tuesday Morning	T. TANNER, L.D.S. Eng. ; G. O. WHITTAKER, L.D.S. Eng.
Wednesday Morning	P.A. LINNELL, L.D.S. Eng. ; F.W. MINSHALL, L.D.S.I.
Wednesday Evening	W.A. HOOTON, L.D.S. Eng. ; H.W. NORMAN, L.D.S. Eng.
Thursday Morning	H. T. DRESCHFELD, L.D.S. ; E.P. COLLETT, L.D.S. Eng.
Friday Morning	... G. G. CAMPION, L.D.S. Eng. ; W. SIMMS, L.D.S.I.
Friday Evening	... W. DYKES, L.D.S. Glas. ; C.H. SMALE, L.D.S.E.
Saturday Morning	J. W. DUNKERLEY, L.D.S.I. ; W. SMITHARD, L.D.S.I.

Administrators of Anæsthetics.

A. WILSON, F.R.C.S.
J. W. SMITH, F.R.C.S.
F. H. WESTMACOTT, F.R.C.S.

Demonstrator.

C. S. MALONE.

Preliminary Instruction.

During the first six months at the Hospital, new students are taken by the Demonstrator through a very complete course of practical instruction in all branches of operative dentistry. This course includes the actual preparation and filling of cavities out of, and in the mouth, the treatment of the different pathological conditions of the dental pulp, the treatment and filling of root canals, and the different methods of crowning.

A special course of demonstrations is given to more advanced students by the Lecturer on Operative Dentistry, and other demonstrations are given periodically by the dental staff.

Prizes.—The Fletcher prizes are awarded annually—in July. They consist of a first prize, value £8, for second year's men, and a second prize, value £2, for first year's men. The Matheson Operating Prize, value £3 3s. A prize, value £2 2s. is given by Messrs. Ash & Sons for the best essay on some subject in general surgery in connection with the teeth. This prize is awarded in July. Two prizes, value one guinea and two guineas are offered respectively to first and second year's men, for proficiency in the

extraction of teeth. A prize, value 2 guineas, for the best [Regulating Case treated during the year.

FEES.—The Fee for the 2 years' Dental Hospital Practice required by the College of Surgeons of England is £12 12s, which must be paid in advance.

A prospectus containing full information may be had on application to—

GEORGE G. CAMPION, Dean

THE OWENS COLLEGE, MANCHESTER.

Principal.—A. W. WARD, LITT., D., LL.D.

Dean of the Department of Medicine.—Professor ALFRED H. YOUNG, M.B., F.R.C.S.

DENTAL DEPARTMENT.

PROFESSORS AND LECTURERS.

- Anatomy, Descriptive and Practical*.—Professor ALFRED H. YOUNG, M.B., F.R.C.S.
Physiology.—Brackenbury Professor WM. STIRLING, M.D., D.Sc.
Chemistry.—Professor HAROLD B. DIXON, M.A., F.R.S.
Organic Chemistry.—Professor W. H. PERKIN, Ph. D., F.R.S.
Medicine.—Professor J. DRESCHFELD, M.D., F.R.C.P.
Surgery.—Professor THOMAS JONES, M.B., F.R.C.S.
Clinical Surgery.—Professor WALTER WHITEHEAD, F.R.C.S.E., F.R.S.E.
Dental Surgery.—Lecturer, G. G. CAMPION, L.D.S.
Operative Dentistry.—Lecturer, G. O. WHITTAKER, L.D.S.
Dental Anatomy and Physiology.—Lecturer, W. A. HOOTON, L.D.S., L.R.C.P., M.R.C.S.
Dental Mechanics.—Lecturer, THOMAS TANNER, L.D.S.
Dental Metallurgy.—Lecturer, C. A. BURGHARDT, Ph. D.
Dental Pathology and Histology.—Demonstrator, DAVID HEADRIDGE, L.D.S.

The Dental Department forms an integral part of the Department of Medicine, and with the Manchester Royal Infirmary and the Victoria Dental Hospital affords the fullest opportunities for study to students preparing for any of the Dental Examinations.

In addition to the ordinary Dental Lectures required by the Licensing Bodies, a course on Operative Dentistry is given during the Summer Session, and these are supplemented by a series of Practical Demonstrations given by the Lecturer at the Victoria Dental Hospital.

There is also a special Course of Demonstrations in Dental Histology and Pathology, in which Students are enabled to mount for themselves Microscopic Specimens illustrating these subjects.

PRIZES.—Prizes or Medals and Certificates are awarded in all the classes on the results of the several examinations.

Special Prizes are also awarded at the Victoria Dental Hospital.

The WINTER SESSION commences on October 1st.

Prospectuses will be forwarded on application.

SYDNEY CHAFFERS., Registrar.

Medicine } Professor C. W. SICKLING, M.D., M.R.C.P.
 } Professor R. SAUNDBY, M.D., F.R.C.P.

Surgery { Professor BENNETT MAY, B.S., F.R.C.S.
 { Professor G. BARLING, B.S., F.R.C.S.
Materia Medica—DENCER WHITTLES, L.D.S.
Dental Surgery—F. HUXLEY, M.R.C.S., L.D.S.
Dental Anatomy—J. HUMPHREYS, L.D.S.I., F.L.S.
Dental Mechanics—F. H. GOFFE, L.D.S.
Dental Metallurgy { Professor FRANKLAND.
 { W. G. MACMILLAN, F.I.C.
Surgical Diseases of the Mouth—F. MARSH, F.R.C.S.
Medical Diseases of the Mouth—STACEY WILSON, M.D., M.R.C.P.

Demonstrators.

Operative Dental Surgery—W. T. MADIN, L.D.S.
Mechanical Dentistry—F. R. HOWARD, L.D.S.
Dental Pathology—J. D. WHITTLES, L.D.S.

Special Courses

Of Lectures for Dental Students will be delivered on—

i. Syphilis and Surgical Diseases of the Mouth in their relation to Dentistry, by Frank Marsh, F.R.C.S., Surgeon to the Queen's Hospital.

ii. Diseases of the Mouth and of Digestion in their relation to Dentistry, by T. Stacey Wilson, M.D., M.R.C.P., Physician to the General Hospital.

The Department, in conjunction with the Dental, the General, and the Queen's Hospitals, provides the entire course of instruction required for the Diplomas in Dental Surgery of the Royal Colleges of Surgeons.

The College possesses a well equipped Dental Museum and Laboratory. An Entrance Scholarship, Medals, and Certificates in the classes are offered annually. At the Dental Hospital, particular stress is laid upon the teaching of all latest methods of conservative Dentistry, including the various modes of Gold Filling, and Crown and Bridge work.

For prospectuses, and further information, application should be made to JOHN HUMPHREYS, Esq., L.D.S.I., F.L.S. Hon. Sec., to the Department, 149, Edmund Street, or to

GEO. H. MORLEY, REGISTRAR.

BIRMINGHAM DENTAL HOSPITAL,

71, NEWHALL STREET.

OPEN DAILY AT NINE A.M.

Provides all the necessary practice for the L.D.S. Eng.

Hon. Consulting Physician—ROBERT M. SIMON, M.D.

Hon. Consulting Surgeon—JOHN ST. S. WILDERS, M.R.C.S.

Hon. Consulting Dentist : .

CHARLES SIMS, L.D.S.

Hon. Administrators of Anæsthetics:

S. W. HAYNES, M.B.

J. HENRY BLAKENEY, M.R.C.S.

CHAS. ST. JOHNSTON, M.R.C.S., L.R.C.P.

MARTIN YOUNG, M.B., M.R.C.S.

T. SYDNEY SHORT, M.B.

A. T. POOLER, M.R.C.S.

Hon. Dental Surgeons:

H. BREWARD NEALE, L.D.S.	J. HUMPHREYS, L.D.S.
F. E. HUXLEY, M.R.C.S., L.D.S.	F. W. RICHARDS, L.D.S.
F. H. GOFFE, L.D.S.	A. E. DONAGAN, B.A., L.D.S.

Hon. Assistant Dental Surgeons:

F. R. HOWARD, L.D.S.	W. T. MADIN, L.D.S.
J. E. PARROTT, L.D.S.	J. MOUNTFORD, L.D.S.

P. T. NADEN, L.D.S.

House Surgeon:

A. T. WILLIS, L.D.S.

Demonstrators:

A. T. HILDER, L.D.S.,	W. M. KNOTT, L.D.S.
A. W. STEYNOR, L.D.S.	

DEMONSTRATIONS.

Clinical Demonstrations will be given from time to time by the Staff on cases of particular interest; also daily upon the preparing and filling of cavities, the insertion of porcelain inlays, pivoting teeth, adapting porcelain and metal crowns to broken down teeth.

The Demonstrators attend four days a week to instruct the Students. New Students are taken through a complete course for three months in the first principles of operative dentistry.

Dental Students are required to register their names for Hospital Practice with the Dean, Mr. F. W. Richards, 27, Paradise Street, from whom further information may be obtained.

DEVON AND EXETER DENTAL HOSPITAL, EXETER.

President.

RICHARD LEY, Esq., J.P.

Honorary Treasurer.

J. M. ACKLAND, M.R.C.S., L.D.S. Eng.

Consulting Surgeons.

A. J. CUMMING, F.R.C.S. Eng.

JAMES BANKART, M.B. Lond., F.R.C.S. Eng.

Consulting Dental Surgeon.

S. BEVAN FOX, L.D.S. Eng.

Dental Surgeons.

J. T. BROWNE-MASON, L.D.S. Eng.	J. M. ACKLAND, M.R.C.S., L.D.S.,
HENRY BIGING MASON, L.D.S. Eng.	Eng.
T. G. T. GARLAND, L.D.S.I.	T. A. GOARD, L.R.C.P.Ld., L.D.S. Eng.
W. H. GOODMAN, L.D.S. Eng.	

Surgeon Administrators of Anesthetics.

JOHN MORTIMER, M.B. Lond., M.R.C.S. Eng.
 RUSSELL COOMBE, M.A. Cantab., F.R.C.S. Eng.

Honorary Secretary.

HENRY YEO.

Attendance on the practice of this Hospital is recognised by the Royal College of Surgeons of England as qualifying for their Dental Diploma.

The Hospital is open daily (Sundays excepted), and patients are admitted between the hours of 9 and 11 a.m.

Pupils or any member of the Staff or other registered Practitioner (being a Life or Annual Governor) are permitted to attend the Practice of the Hospital, subject to the approval of the Medical Sub-Committee, on payment of Five Guineas annually to the Funds of the Institution. Students attending the practice of the Hospital must consider themselves strictly under the control of the Medical Officers, and must not undertake any operation without the consent of the Dental Surgeon for the day.

PLYMOUTH DENTAL HOSPITAL,

BANK STREET CHAMBERS, BANK STREET, PLYMOUTH.

The Dentists attend each day, at 9 a.m. except Sundays.

Certificates of attendance on the practice of this Dental Hospital are recognised by the College of Surgeons as qualifying for the Diploma in Dental 'Surgery. The College also recognizes the lectures delivered at the Hospital.

Pupils of any of the Dental Surgeons of the Plymouth Dental Hospital, or other Dentists holding a Diploma of the College of Surgeons, or Members of the Odontological Society, may attend the Hospital on the day of such practitioner as may agree to accept such pupils, on the payment of £1 1s. per annum to the institution.

A Course of Lectures will—if a sufficient number of Students present themselves—be delivered during the year.

On "Dental Physiology, Dental Anatomy, Dental Mechanics."

Fee to Lectures, one Course, £7 7s.

Fee to Lectures, double Course, £12 12s. (required for Diploma.)

Fee to Dental Practice at Hospital £5 5s. per annum.

Fee to entire Dental Curriculum (required for Diploma) 22 guineas.

E. A. BENNETT, Hon. Sec. and Treasurer.

EDINBURGH.

INCORPORATED EDINBURGH DENTAL HOSPITAL AND SCHOOLS.

Consulting Medical Officers:

Dr. ALEX. PEDDIE, F.R.C.P.E., Physician. — Dr. JOSEPH BELL, F.R.C.S.E., Surgeon.

Dr. JOHN SMITH, L.L.D., F.R.C.S.E., Surgeon-Dentist.

Dean—Mr. W. BOWMAN MACLEOD, L.D.S., 16, George Square.

Dental Surgeons.

Monday	...	...	...	...	Mr. J. G. MUNRO, L.D.S.
Tuesday	...	...	...	...	Mr. G. W. WATSON, L.D.S.
Wednesday	...	...	...	...	Mr. J. S. DURWARD, L.D.S.
Thursday	...	...	...	...	Mr. J. S. AMOORE, L.D.S.
Friday	...	...	...	...	Mr. FRED PAGE, L.D.S.
Saturday	...	...	...	...	Mr. DAVID MONROE, L.D.S.

Assistant Dental Surgeons.

Monday	Mr. H. B. EZARD, L.D.S., Mr. J. ALEX. YOUNG, L.D.S.
Tuesday	Mr. R. N. HANNAH, L.D.S.; Mr. FRED. J. TURNBULL, L.R.C.P., & S., L.D.S.
Wednesday	Mr. T. GREGORY, L.D.S.; Mr. D. B. WILSON, L.D.S.
Thursday	Mr. ROBERT LINDSAY, L.D.S.; Mr. HUME PURDIE, L.D.S.
Friday	Mr. SEWELL SIMMONS, L.D.S.; Mr. J. MALCOLM, L.D.S.
Saturday	Mr. D. R. CAMPBELL, L.D.S.; Mr. H. H. CHAPMAN, L.D.S.

Chloroformists.

Monday	...	...	Dr. R. J. JOHNSTON.
Tuesday	...	...	Dr. THOMAS PROUDFOOT.
Wednesday	...	...	Dr. WM. LUNDIE, B.Sc.
Thursday	...	...	Dr. G. MATHESON CULLEN.
Friday	...	...	Dr. HUGH JAMIESON.
Saturday	...	...	Dr. M. FARQUHARSON.

Tutorial Dental Surgeon.

Mr. J. MORRIS STEWART, L.D.S.

Hospital Practice commences on 5th October.

DENTAL SCHOOL.

LECTURES.

Dental Anatomy and Physiology (Human and Comparative) by ANDREW WILSON, L.D.S.—These Lectures will be delivered on the evenings of Tuesday and Thursday, at 8 o'clock, commencing 1st Tuesday in November. The Course consisting of twenty-four Lectures, will be illustrated by preparations, models, diagrams, microscopical specimens, etc.

Dental Surgery and Pathology, by GEORGE W. WATSON, L.D.S.—These Lectures will be delivered on the mornings of Tuesday and Friday at 8 o'clock, during the Summer Session, commencing May, 1897. The course, consisting of twenty-four Lectures, will be illustrated by preparations, models, diagrams, microscopical preparations, etc.

Mechanical Dentistry, by Messrs. W. BOWMAN MACLEOD, L.D.S. and J. GRAHAM MUNROE, L.D.S. The Lectures will commence November, 1897, at 8 p.m., and be continued every Wednesday thereafter till the Course of at least twelve Lectures is concluded.

In connection with the above a course of Lectures on Metallurgy will be given by Mr. ROBERT LINDSAY, L.D.S.

Practical Mechanics.—J. GRAHAM MUNROE, L.D.S.—In addition to the Systematic Lectures, there will be given during the Session, Demonstrations on Dental Mechanics, and each Student will be expected to prepare the mouth, take the impression, make the denture, and insert the same in at least four cases. Special facilities are afforded in the Mechanical Department; a large and fully equipped workroom under the charge and direction of a competent mechanic, having been set aside for the construction of dental appliances. The Demonstrations will be spread over the two years of Hospital practice, and will be given as occasion serves. Students will be required to furnish their own hand tools.

Extra course of Lectures, Dental Materia Medica and Therapeutics, by WM. GUY, F.R.C.S., L.R.C.P., L.D.S. Gold Fillings, H. BYCROFT EZARD, L.D.S.

In the various classes prizes will be offered for competition.

General Fee for the Hospital Practice and special Lectures required by the Curriculum.—Hospital Practice, £15 15s. One Course each of Dental Anatomy, Dental Surgery, and Mechanical Dentistry, £9 15s.—£25 10s.

Fees to separate Classes.—Dental Anatomy, Dental Surgery, Mechanical Dentistry, £3 5s. each.

The Hospital Practice and Lectures qualify for the Dental Diploma of the Royal College of Surgeons, Edinburgh, and also for the other Licensing Bódies. Second Courses of the Lectures as required by the Royal College of Surgeons of England, £2 4s.

For further information apply to the Dean, who will be found at the Hospital every Thursday morning between 9 and 10 o'clock.

THE SESSION 1897-8 OPENS OCTOBER 5th, 1897.

General Fee for the Hospital Practice and special Lectures required by the Curriculum.

Hospital Practice, Two Years.....	£15	15	0
One Course of 24 Lectures in Dental Anatomy ...	}	9	15 0
„ 22 „ „ Surgery ...			
„ 12 „ „ Mechanics ...			
Total.....	£25	10	0

For further particulars, apply to the Dean, Chambers Street, Edinburgh.

GLASGOW.

DENTAL HOSPITAL AND SCHOOL,

5, ST. VINCENT STREET.

The Hospital is open daily except Saturday and Sunday, from 5 p.m. till 7 p.m.

The work of the Hospital is conducted as far as possible, by the Students, under the supervision of the Dental Officer of the day. Cases of special interest will be made the subject of clinical instruction or demonstration as they occur.

The practice of the Hospital may be entered upon at any time during the Session and attendance dated therefrom. Fee for the two years' practice required by the Curriculum, £15 15s. Fee for each course of Lectures, £3 3s.

DENTAL SCHOOL.

Dental Anatomy and Physiology, Human and Comparative, by W. WALLACE, M.A., M.B., L.D.S.

The Lectures will be delivered in the Summer Session, on the evenings of Tuesdays and Fridays, at 8 p.m., and will be illustrated by Diagrams, Preparations, and Microscopic Specimens. Text Book—Tomes Manual of Dental Anatomy, Human and Comparative.

Dental Surgery and Pathology, by J. M. MACMILLAN, L.R.C.S., & P.Ed., L.D.S.

These Lectures are delivered on Tuesdays and Thursdays during the months of May and June, at 8 a.m., and will be illustrated by recent Specimens, and other Preparations and Drawings, &c. Text-books—Tomes' Manual of Dental Surgery and Diseases and Injuries of the Teeth by Morton Smale and J. F. Colyer.

Mechanical Dentistry, by J. A. BIGGS, L.D.S.

This course will commence on the first Tuesday of November at 7.30 p.m., and will consist of 12 Lectures, with Practical Demonstrations in Dental Laboratory.

All communications on matters relating to the Dental School should be addressed to D. M. ALEXANDER, Solicitor, 97, West Regent Street, Glasgow, who will forward detailed Prospectus of the School.

SCHOOL OF MEDICINE OF THE ROYAL COLLEGES, EDINBURGH.

The Fees required for students attending general subjects necessary for the curriculum of the Royal College of Surgeons, Edinburgh, are the same as those for the Conjoint Examining Board, as Candidates for the L.R.C.S.E. require to be in possession of a recognised Diploma in Medicine.

The Secretary of the School is Mr. R. N. RAMSAY, 24, Forrest Road, Edinburgh, from whom the official Calendar may be had gratis.

DENTAL HOSPITAL OF IRELAND,

LINCOLN PLACE, DUBLIN.

The WINTER SESSION will commence on Monday, October 11th, 1897.

The SUMMER SESSION will commence in April, 1898.

Consulting Physicians:

SIR F. R. CRUISE, M.D.

JOHN W. MOORE, M.D.

Consulting Surgeons:

E. H. BENNETT, M.D., F.R.C.S.I.

SIR W. STOKES, F.R.C.S.I.

Consulting Dentists:

R. H. MOORE, F.R.C.S.I.

DANIEL CORBETT, M.R.C.S.E.,

W. BOOTH PEARSALL, F.R.C.S.I.

L.D.S. Eng.

Dentists:

ROBERT HAZELTON, F.R.C.S.I.

A. W. W. BAKER, M.D., F.R.C.S.I.,

R. THEODORE STACK, M.D.

L.D.S.I.

F.R.C.S.I., D.M.D. (Harv.) L.D.S.,
Eng.

G. W. YEATES, M.B., Ch M., L.D.S.I.

G. M. P. MURRAY, F.R.C.S.I.

D. CORBETT, Jr., A.B., F.R.C.S.I.

J. S. THOMSON, L.D.S. Ed.

SHENSTONE BISHOP, L.D.S.I.

Assistant Dentists:

K. E. O'DUFFY, L.D.S., Ed.

GEORGE J. GOLDIE, L.D.S. Edin.

VINCENT DOYLE, L.D.S.I.

MURRAY THOMSON, L.D.S. Edin.

J. P. MOORE, M.B., Ch. M., L.D.S. Eng.

W. G. STORY, M.B., L.D.S.I.

Extra Assistant Dentists.

JOHN STANTON, L.D.S.I.

WILLIAM CAREW, L.D.S.I.

Anæsthetists.

J. G. CRONYN, L.R.C.S.I., L.K.Q.C.P.I.

CHAS. J. BOYCE, L.R.C.S.I., L.R.C.P.

JAS. B. COLEMAN, M.D., Ch. M., R.U.I.

MICHAEL O'SULLIVAN, M.B., Ch. B.

J. DALLAS PRATT, M.D., F.R.C.S.I.

F.R.U.I.

HENRY DRURY, M.D., F.R.C.P.I.

Pathologist—JOHN MALLET PURSER, M.D.

Registrar—WILLIAM A. SHEA, J.P.

All Dental Students who have passed their Preliminary Examination are admissible to the Clinical Instruction of the Hospital, after paying Fees and subscribing to the conditions prescribed by the Staff.

In addition to Clinical Instruction, Courses of Lectures and Demonstrations will be given at the Hospital in Dental Surgery and Pathology, Mechanical Dentistry, the Administration of Anæsthetics, Dental Microscopy, crowns, pivots, porcelain inlays, gold fillings, &c.

In addition to the longer courses of Hospital attendance, special courses of three months' duration, will be given to Surgeons about to join the Army and Navy, or to practise in the Colonies or remote country districts.

Regulations as to Fees and other conditions can be obtained from the Registrar of the Hospital, or from

R. THEODORE STACK, M.D., Dean.

COOKE'S SCHOOL.

This School is recognised by the London University, and other Examining Bodies, and offers somewhat special advantages to such as aim at combining the Dental and Medical Curricula with economy as to time and expense. Through the School being open for Anatomical work, not only during the winter months, but also during the summer months, extra time is obtained which would admit of the Dental and Medical Curricula being taken conjointly in something like the time usually allotted to either. It is not intended to take on *for Curriculum work*, at Cooke's School more than a limited number of men, *who must be steady and earnest workers*. For such, however, exceptional advantages are offered in regard to thoroughly practical work in Anatomy and Physiology. The School also affords ample opportunities for additional work in preparation for the various examinations: dissecting room well supplied with dissected parts, &c., &c. For further information apply to Mr. Thomas Cooke, F.R.C.S., 40, Brunswick Sq., W.C.

INSTITUTE OF DENTAL TECHNOLOGY, AND SCHOOL OF MECHANICAL DENTISTRY, 4, LANGHAM CHAMBERS, ALL SOUL'S PLACE, LONDON, W.

The Institute has been recognised by the Technical Education Board of the London County Council as a School where intermediate Scholarships can be held for a two years course in Manual Training, Science, and Applied Dental Technics.

The *first year's* course is mainly devoted to Manual Training in Wood and Metal Work at Anvil, Forge, Vice, and Lathe, with Drawing; Instrument Making; Modelling and Wood-carving with Repoussé Work; Pattern-making and Moulding; and the Scientific Course in Physics, Chemistry, and Morphology of the Teeth, and introductory Mechanical Laboratory course;

the *second*, to Applied Manual Training in a graduated series of dental appliances, Plate Work, Crown and Bridge Work; and the Applied Science Course of Chemical and Metallurgical Dental Technics, Furnaces, Metals, Alloys, Solders, Plate, Wire, Clasps, Amalgams, and Cements; the *third*, to special and more advanced work in Mechanical Dentistry, comparative value of different methods, Ceramics, Continuous Gum Work, Obturators, Dental Splints, and Surgical Appliances and Restorations; and to Research Work or Elective Studies according to individual capacity.

The Manual Training Department is in full working order under the superintendence of W. H. MASSEY (City and Guilds Certificate).

The Scientific Department is under the direction of W. I. APRAIK, Ph.D., F.I.C., F.C.S.

The Art Teaching will be conducted by special instructors from the Guild and School of Handicraft, by arrangement with C. A. ASHBEE, M.A.

The Mechanical Laboratory is open daily, under the superintendence of Mr. W. Lombardi and E. C. Dimock, L.D.S. Eng.

The Sedley Taylor (£25) and the Jonas (£10) Scholarships will be awarded according to the applicant's skill and experience in handicraft, previous to entrance as a Student.

Probationary Course in Manual Training, three months, 38 hours teaching weekly; pupils can enter at any time. Fee, £21, which will be accepted as part premium; and the course as part time of any subsequent indenture.

A Special Practical Tuition Class will commence early in October, for the practical examination in Mechanical Dentistry for the L.D.S.

Evening Classes are arranged each term in Crown and Bridge Work, Special Methods in Mechanical Dentistry including an Improver's Course, and Manual Training.

Further particulars and full syllabus may be obtained from the Principal,—

GEORGE CUNNINGHAM, M.A. Cantab., D.M.D. Harvard Univ.,
L.D.S., R.C.S. Eng.

IV. GENERAL HOSPITALS.

CHARING CROSS HOSPITAL.

Dental Surgeon—J. F. COLYER, M.R.C.S., L.R.C.P., L.D.S., who attends at the Hospital, two days a week, at 9 a.m. for Dental Operations. A course of Lectures on Dental Surgery is also given during January, February, and March, and Tutorial classes three days each week throughout the year by Mr. COLYER.

Students may serve as assistants to the Dental Surgeon for a period of three months.

The composition fee for dental students is 54 guineas, or 60 guineas, payable in two instalments of 30 guineas each.

A proportionate reduction of the above fees will be made to those students who have completed part of the curriculum at a recognized institution.

The hours of lectures have been specially arranged to suit the convenience of dental students. Charing-cross Hospital is within three minutes' walk of the Dental Hospital of London.

For further information apply to the Dean, Dr. Montague Murray, or to the Librarian and Secretary, Mr. J. Francis Pink, at the office of the Medical School, Chandos Street, Charing-cross, between the hours of 10 and 4.

LONDON HOSPITAL AND MEDICAL COLLEGE.

Dental Surgeons—Mr. CUNNINGHAM & Mr. DOLAMORE.

DENTAL DEPARTMENT.

Mr. Cunningham and Mr. Dolamore give practical instruction during the Winter and Summer Sessions on Mondays, Tuesdays, Wednesdays and Thursdays at 9 a.m. In selecting from Candidates for the office of Dental Assistant, priority will be given to those who have attended the greatest number of Lectures on Dental Pathology and Surgery, and have also been the most punctual in attendance in the Dental Department. A class for special instruction in filling teeth will be formed each term. Candidates for Dresser-ship must undertake to attend regularly on Mondays and Thursdays, or on Tuesdays and Fridays, for three months, and to follow the practical course of demonstrations.

DENTAL SURGERY.

By GEO. CUNNINGHAM, M.A. Cantab., L.D.S. Eng., D.M.D. Harv., and W. H. DOLAMORE, M.R.C.S., L.R.C.P., L.D.S. Eng., Surgeon-Dentists to the Hospital.

Thursday, at 11 a.m.

This Course of Lectures, specially arranged for Medical Students, will be delivered during May and June.

The Lectures will be supplemented by demonstrations of practical work and will be specially directed to meet the requirements of the Medical Practitioner. It will comprise a short description of the Anatomy and Physiology of the Teeth, special attention being given to Oral Hygiene.

Irregularities of the Teeth, with special reference to cases which may be treated by surgical means as distinguished from those requiring dental appliances.

Dental Caries and its treatment, which will be specially directed to palliative dressings and simple fillings.

Diseases of the Dental Pulp and Periosteum and their treatment.

Neuralgia and other affections arising from dental causes.

The practical work will include exercises in the extraction of teeth on models specially prepared or on the Cadaver, and the preparation of cavities and simple fillings on Models specially prepared. The demonstrations will illustrate, as far as possible, the whole range of dental operations, with a view to showing what assistance can be afforded by the dental practitioner.

DENTAL ASSISTANTS.

Two or more Dental Assistants are appointed every three months. The terms of office date from the first Tuesday in January, April, July, and October.

Application for further particulars with reference to these classes may be made to the Warden, at the College.

KING'S COLLEGE, STRAND, W.C.

Special arrangements are made for Dental Students. [Apply to the Dean.

MIDDLESEX HOSPITAL.

Consulting Dental Surgeon—J. S. TURNER, M.R.C.S., L.D.S.

Dental Surgeon—W. STORER BENNETT, F.R.C.S., L.R.C.P., L.D.S.

Assistant Dental Surgeon—W. HERN, M.R.C.S., L.D.S.

Students who intend to become Licentiates in Dental Surgery of the Royal College of Surgeons are admitted to attend the requisite courses of Lectures—which are arranged to fit in with the work at the Dental Hospitals—and Hospital Practice on payment of a fee of 54 guineas, in one payment, or by instalments of £42 on entrance, and £21 at the beginning of the Second Winter Session.

A short course of Lectures on Dental Surgery will be delivered during November and December by the Lecturer on Dental Surgery, Mr. Storer Bennett. The Lectures will be supplemented by practical Demonstrations, which will be given every week during the Winter and Summer Sessions by the Dental Surgeon and Assistant Dental Surgeon. Students of the Hospital free, others pay a fee of 2 guineas.

Further information may be obtained from W. Pasteur, M.D., the Dean, or from the Resident Medical Officer at the Hospital.

ST. BARTHOLOMEW'S HOSPITAL AND COLLEGE.

Dental Surgeons—MR. PATERSON, MR. ACKERY.

Assistant Dental Surgeons—MR. READ, MR. ACKLAND.

The Dental Department of the Hospital is open on Tuesday and Friday mornings at 9 o'clock. The practice of the department is recognised by the Royal College of Surgeons.

The fee for general subjects for Dental Students for the first winter is £33 2s. 6d., for the first summer £33 2s. 6d., or a single payment of £66 3s.

ST. GEORGE'S HOSPITAL.

Dental Surgeon—H. L. ALBERT, M.R.C.S., L.D.S.

Mr. Albert attends at the Hospital on Mondays and Fridays at 12 noon; his assistant on Tuesdays and Saturdays, at 12 noon.

Fees for general subjects in Dental Surgery, exclusive of Practical Chemistry, £50, or £55, in two instalments: first year, £30; second year, £25.

Further information can be obtained by application to Dr. ISAMBARD OWEN, Dean of the Medical School.

ST. MARY'S HOSPITAL MEDICAL SCHOOL.

Dental Surgeon—MORTON SMALE, M.R.C.S., L.D.S.

Practical instruction in Dental Operations is given on Wednesdays and Saturdays at 9 a.m. Dressers are appointed who hold office for three months.

For prospectuses and further information apply to the School Secretary, Mr. FREDERIC H. MADDEN.

GEORGE P. FIELD, Dean of the School.

ARTHUR P. LUFF, M.D., Sub-Dean.

ST. THOMAS'S HOSPITAL.

Dental Surgeon—CHARLES EDWIN TRUMAN, M.A. Cantab, M.R.C.S., L.D.S.

Assistant Dental Surgeon—Vacant.

Gentlemen may receive instruction in diseases of the teeth, are appointed dressers, and can undertake operations, subject to the supervision of the Dental Surgeons, Tuesdays and Fridays at 10 a.m.

Numerous cases of irregularity of the teeth, and the application of artificial appliances, are undertaken during the term.

The fee for attendance on the *general* subjects required of the students in Dental Surgery, is, for the two years, £65, or by instalments, £55 for the first year, and £15 for the second year.

UNIVERSITY COLLEGE HOSPITAL.

Dental Surgeon—SIDNEY SPOKES, M.R.C.S., L.D.S.

Mr. Spokes attends at the Hospital on Tuesdays and Fridays, at 9.30 a.m. and delivers a Course of Lectures on Fridays at 5 p.m., during the months of November and December.

At University College a material reduction in the fees is made for students who are entered at a recognised Dental Hospital. For those who do not require Chemistry and Materia Medica, there is a Composition Fee of 50 guineas.

WESTMINSTER HOSPITAL.

Consulting Dental Surgeon—J. WALKER, M.D., M.R.C.S., L.D.S.

Dental Surgeons—C. W. GLASSINGTON, M.R.C.S., L.D.S., & E. GARDNER, L.D.S.

Dental Department.

The Dental Surgeons, Mr. Glassington and Mr. Gardner, attend at 9.15 a.m. on Wednesdays and Saturdays respectively.

Mr. Glassington attends at 9.15 a.m. on Wednesdays, and Saturdays for practical demonstration of diseases and operations of the teeth.

The fee for attendance on the Dental Practice is £2 2s. for three months, and £3 3s., for six months. The whole of the General Lectures and Surgical Practice required for the Dental Diploma of the College of Surgeons can be attended for £50 in one sum on entrance, or for two sums of £27 10s. payable at the beginning of each year.

Mr. Glassington will give a series of Demonstrations on Dental Surgery and Pathology, to meet the requirements of the general student of Medicine, at an hour to be determined at the commencement of the Session.

A Scholarship value £20 is offered annually in September for Competition to commencing Dental Students.

A Conversazione preceded by the Distribution of Prizes will take place at the Westminster Town Hall, on Thursday, September 30th at 8.30 p.m.

The Session will commence on Friday, October 1st.

HARVARD UNIVERSITY DENTAL DEPARTMENT, BOSTON, MASS., U.S.A.

The Sessions of this School begin the last Thursday in September, and end the last Wednesday in June, making nine months of practically continuous work in each year.

General Anatomy, with Dissections, Physiology, General Chemistry, Hygiene, Histology, and Embryology, and Bacteriology, are the studies of the first year. Of the second year they are Operative and Mechanical Dentistry, and Orthodontia, Crown and Bridge work, and Metallurgy, Materia Medica and Therapeutics, Oral Anatomy and Physiology, and Bacteriology, Dental Pathology and Oral Surgery. Of the third year Operative and Mechanical Dentistry, and Orthodontia, Crown and Bridge work and Metallurgy, Neurology, and Surgical Pathology and Surgery. The Student can also attend gratuitously all the *lectures* in any other department of the University.

The Infirmary furnishes abundant facilities, averaging 8,000 operations, of which a large proportion consists of filling teeth, every year.

The University degree D.M.D (Dentariæ Medicinæ Doctor) is conferred on all who fulfil the requirements.

For the first year a student is a member of the school the fee is 200 dols.; for the second year, 150 dols, for the third year 150 dols., and for any subsequent year, 50 dols

For further information and catalogues address, Eugene H. Smith, Dean, 283, Dartmouth Street, Boston, Mass.

V. SCIENTIFIC ASSOCIATIONS.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN

40, LEICESTER SQUARE, W.C.

OFFICERS FOR 1897-98.

President—W. E. HARDING.*Vice-Presidents* :

RESIDENT.

C. J. B. WALLIS.
JOHN ACKERY.
C. WEST.

NON-RESIDENT.

J. F. COLE, (Ipswich).
MALCOLM MACGREGOR,
(Edinburgh).
W. A. HUNT, (Yeovil).*Treasurer*—W. H. WOODRUFF.*Librarian*—W. A. MAGGS.*Curator*—STORER BENNETT.*Editor of the Transactions*—J. F. COLYER.*Honorary Secretaries.*J. H. MUMMERY, (Foreign). H. BALDWIN, (Council),
J. O. BUTCHER (Society).*Councillors:*

RESIDENT.

A. SMITH.
G. D. CURNOCK.
H. J. GOULD.
H. L. ALBERT.
H. J. KLUHT.
H. LLOYD WILLIAMS.
A. E. C. WOODHOUSE,
J. H. BADCOCK.
C. W. BATEMAN.

NON-RESIDENT.

G. CUNNINGHAM, (Cambridge).
C. B. MASON, (Scarborough).
J. J. ANDREW, (Belfast).
E. N. WASHBOURNE, (Ripon).
J. S. AMOORE, (Edinburgh).
W. R. ACKLAND, (Bristol).
A. A. MATHEWS, (Bradford).
MORTON HUGHES, (Croydon).
J. A. FOTHERGILL, (Darlington).

EXTRACT FROM THE BYE-LAWS.

Objects and Constitution of the Society.

The Society is instituted for the encouragement and diffusion of knowledge in Dental Surgery, and for the promotion of intercourse among Members of the Dental Profession.

The Society shall consist of Resident, Non-Resident, Corresponding, and Honorary Members.*

1. The Resident Members shall consist of gentlemen residing or practising wholly or partly in London or within ten miles of the General Post Office, St. Martin's-le-Grand.
2. The Non-Resident Members shall consist of gentlemen wholly practising beyond ten miles from the General Post Office.
3. The Corresponding Members shall consist of distinguished gentlemen residing in the Colonies of Great Britain or in Foreign Countries.

* Candidates for the Resident, Non-Resident, or Corresponding Membership of the Society shall not be eligible unless they practise as Dental Surgeons, or are interested in the progress of Dental Surgery, and are also Licentiates in Dental Surgery, or qualified Practitioners of Medicine or Surgery: or possess such a Diploma or Degree as in the opinion of the Council, will qualify them for the Membership of the Society.

4. The Honorary Members shall consist of distinguished Practitioners of Dental Surgery who have retired from practice, of distinguished Medical Practitioners, and of gentlemen distinguished in any department of Science.

Persons who advertise in the public journals, or by circular, either their profession or their professional attainments or public appointments, or anything relating to their mode of practice or charges, or who expose for public inspection specimens of operative or mechanical Dentistry, or conduct their practice in any way which in the opinion of the Council of this Society, is derogatory to the respectability of the Profession, shall not be considered eligible for nomination as members.

No person being the proprietor of a secret remedy, or holding a patent relating to the requirements of Dental Practice, shall be a member of this Society.

Election and Admission of Resident and Non-Resident Members.

Candidates for Resident Membership shall be recommended by four or more Members, two at least signing from personal knowledge. Candidates for Non-Resident Membership shall be recommended by three members, one at least signing from personal knowledge.

All recommendations for resident or non-resident members shall be submitted to, and approved of, by the Council, before being proposed to the Society for ballot.

Contributions of Members.

Every person elected a Resident Member shall pay Three Guineas as an Admission Fee and an Annual Subscription of Two Guineas, *in advance*.

Every person elected a Non-Resident Member shall pay Two Guineas as an Admission Fee and an Annual Subscription of One Guinea *in advance*.

The Entrance Fees and First Annual Subscriptions shall be paid on admission, and the subsequent Annual Subscriptions in the month of November in each year; but new members proposed at or after the January Meeting, shall not be required to pay any Subscription for the current Session.

Ordinary Meetings.

The Ordinary Meetings of the Society shall be held on the first Monday in each month, from November to June, both inclusive, at 8 p.m. precisely, except in the month of January, or when an Act of Parliament holiday occurs on that day, the meeting shall be held on the Monday next ensuing.

Each Member may introduce two Visitors at these Meetings on writing the Visitors' names in a book to be kept for that purpose. The same Visitors will not be admitted more than three times during one Session.

Annual General Meeting.

The Annual General Meeting of the Society for the election of the Officers and Councillors, &c., shall be held on the evening of the first Monday in June every year.

Society's Transactions.

The Transactions of the Society, under the designation of "Transactions of the Odontological Society of Great Britain," shall be printed at such times and in such manner as the Council shall direct.

The "Transactions" shall be presented to all Resident and Non-Resident members of the Society who have paid their Annual Subscriptions.

ODONTO-CHIRURGICAL SOCIETY OF SCOTLAND,
31, CHAMBERS STREET, EDINBURGH.

President—Mr. J. STEWART DURWARD, L.D.S.

Vice-Presidents.

Mr. J. S. AMOORE, L.D.S.

Mr. REES PRICE, L.D.S.

Treasurer—Mr. MALCOLM MACGREGOR, L.D.S.

Council.—Messrs. CAMPBELL, WATSON, WALKER, DALL.

Secretary—Mr. HERBERT B. EZARD, L.D.S., 18, Manor Place, Edinburgh.

Ordinary Meetings.—The Society meets on the second Thursdays of November, December, January, February and March.

EXTRACTS FROM THE CONSTITUTION AND LAWS.

Name and Objects.

The Society shall be named the "Odonto-Chirurgical Society," and shall have for its objects the Promotion and Diffusion of Knowledge in matters connected with Dental Surgery; the furtherance of communications on such subjects by members of the Society; and otherwise to advance the interests of Dental Surgery as a branch of Medicine.

Ordinary and Honorary Members.

The Society shall consist of Ordinary, Honorary, and Corresponding Members.

(A.) Ordinary Members. Gentlemen shall be eligible for Ordinary Membership who hold the Licentiate in Dental Surgery of any of the Licensing Bodies of Great Britain or Ireland, or a Colonial or Foreign qualification recognised by the General Medical Council, entitling them to practise dentistry in Great Britain.

(B.) Honorary Members. Gentlemen (practising or retired) who hold a qualification recognised by the General Medical Council, or Foreign or Colonial Dentists holding a qualification recognised in their own country, who may have distinguished themselves in the practice of, or in connection with Dentistry, and Medical or Scientific men who may have distinguished themselves in connection with Dentistry, shall be eligible as Honorary Members.

(C.) Corresponding Members. Gentlemen resident in the Colonies or Foreign Countries, holding qualifications recognised in their respective countries shall be eligible as Corresponding Members.

The Ordinary Members shall have vested in them the Government of the Society, and all cases not otherwise specified shall be decided by them by a majority of votes by ballot if required.

Obligations of Members.

No member shall be permitted to advertise his profession, his modes of practice, or his charges, either in the public journals or by circular. They shall not be permitted to expose specimens of their work for public inspection, nor to carry on their practice in connection with any other business, nor to hold any patent relating to Dental practice, nor to conduct themselves in any way which the Society may consider derogatory to the Profession, so long as they continue members of the Society. But members who practise in towns other than that in which they reside, shall be allowed to intimate their visits; such intimations being subject to the approval of the Council.

Applications for Membership.

Candidates for admission as Members of the Society shall be recommended by an Ordinary Member, and the recommendation seconded by another

After being approved by the Council, such recommendation shall be read to the Society at an Ordinary Meeting, and shall lie over to the next, when the Candidate shall be balloted for, when two-thirds of the Members present must be in his favour to secure his election.

Contributions.

Ordinary Members shall pay an Entrance Fee of Half a Guinea, and Half a Guinea of an Annual Subscription in advance. All Annual Subscriptions to date from the 1st March preceding the Candidate's admission.

NORTH OF ENGLAND ODONTOLOGICAL SOCIETY, NEWCASTLE-ON-TYNE.

President—T. E. KING, L.D.S. Eng.

Vice-Presidents:

J. F. KEKWICK, L.D.S.I. | R. L. MARKHAM, L.D.S.I.

Hon. Treasurer—W. G. ROUTLEDGE, L.D.S. Edin.

Hon. Secretaries:

J. G. RANKER, L.D.S. Eng., 14, Grange Crescent, Sunderland.

W. D. MOON, L.D.S. Eng., 8, Jesmond Road.

Council:

JOHN KEKWICK, L.D.S. Eng.

J. W. DANIELS, L.D.S. Edin.

S. BROWN.

J. T. JAMESON, L.D.S. Edin.

J. A. FOTHERGILL, M.R.C.S., &c.

W. SOMMERVILLE-WOODIWI, L.D.S.
[Edin.]

Extract from Laws.

The Society shall have for its objects the diffusion of knowledge, and the promotion of intercourse among Dentists, and the advancement of the general interests of the Dental Profession.

The Society shall consist of Ordinary and Honorary members:—

The Ordinary Members shall consist of gentlemen who are practising or have practised as dentists, and are registered under the Dentists' Act of 1878.

Obligation of Members.

Members shall not be permitted to advertise in the public journals, or by circulars, either their professional attainments, or public appointments, or anything relating to their modes of practice or charges: or to expose for public inspection specimens of operative or mechanical dentistry, or conduct their practices in any way which in the opinion of the Council is derogatory to the Profession.

Application for Membership.

Candidates for admission as Members shall be recommended by one Member from personal knowledge, and by one Member from general knowledge.

Meetings.

The Ordinary Meetings will be held in Newcastle-on-Tyne, on the third Thursday of each of the months, from October to March inclusive, at 6 p.m.

Contributions.

Members shall pay an Entrance Fee of five shillings on admission, and an annual subscription of half a guinea in advance.

THE BRITISH DENTAL ASSOCIATION,

(Incorporated June 3rd, 1880.)

40, LEICESTER SQUARE, LONDON.

President—R. T. STACK, M.D. Dub., F.R.C.S.I., L.D.S. Eng., D.M.D. Harv.*Vice-Presidents.*

SIR EDWIN SAUNDERS, F.R.C.S. | Dr. JOHN SMITH, F.R.C.S., Edin.

J. SMITH TURNER, M.R.C.S., L.D.S. Eng.

President of Representative Board—J. H. MUMMERY, M.R.C.S., L.D.S.*Treasurer*—W. HERN, M.R.C.S., L.D.S., Eng.*Honorary Secretary*—W. B. PATERSON, F.R.C.S., L.D.S. Eng.*Extracts from Memorandum of Association and Bye-laws.*

The objects for which the Association is established are the promotion of Dental and the allied Sciences, and the maintenance of the honour and the interests of the Dental Profession by

“The Periodical meetings of the Members of the Association and the Dental profession generally, in different parts of the country.

“The publication of a periodical journal, and by

“The maintenance of the spirit and provisions of the Dentists' Act, by such lawful means as may be necessary, &c., &c.”

Extracts from the Bye-laws.

A person who is registered in the Dentists' Register shall be eligible for election as a member of the Association, provided that he be of good character; that he does not conduct his practice by means of the exhibition of Dental specimens, appliances, or apparatus in an open shop, or in a window, or in a showcase exposed to public inspection; or by means of public advertisements or circulars, describing modes of practice, or patented or secret processes; or by the publication of his scale of professional charges.

Any registered practitioner not disqualified by any Bye-law who shall be recommended as eligible by any three Members of the Association (the recommendation of one being from personal knowledge), and who has signed the appended form of application for admission and agreement as to terms of Membership, may be elected a Member by the Representative Board or by the Council of a recognized Branch.

The subscription is one guinea per annum, and each member is entitled to a copy of the Journal of the Association monthly, and to attend the Annual Meetings of the Association.

THE MIDLAND BRANCH OF THE BRITISH DENTAL ASSOCIATION.

EXTRACT FROM BYE-LAWS.

1. Composed of Members of the British Dental Association who reside in the Midland and North Western Counties of England, and of Associates who can fulfil the conditions laid down in the Bye-laws. The Annual Meeting usually takes place in June; and informal meetings are held in February and October.

2. The Association shall consist of Members and Associates. No one shall be eligible for membership who is not already a member of the British Dental Association. Any registered Practitioner of good character, who does not conduct his practice by means of the exhibition of Dental Specimens, appliances or apparatus in an open shop, or in a window, or in a show case exposed to public inspection; or by means of public advertisements or circulars

describing modes of practice ; or patented or secret processes ; or by the publication of his professional charges, may be admitted as an Associate. Associates shall be entitled to all the privileges of the Branch Association, but shall not be entitled to vote or hold office therein.

3. Any member of the British Dental Association may be elected a Member of the Branch by the Council of the Branch, at any of their ordinary Meetings, on his sending a written application for election to the Secretary of the Branch.

4. Any registered Practitioner who can subscribe to the conditions laid down in Bye-law 2, and who shall be recommended as eligible by any three members or Associates, may be elected an Associate by the Council, on his forwarding the recommendation and his subscription to the Honorary Secretary of the Branch.

5. The Annual Subscription to the Branch is as follows :—Members, Five Shillings ; Associates, Ten Shillings. The subscription to date from the time of election, and from the 1st of January in each subsequent year, and to be paid in advance, but Members or Associates elected in the months of October, November, or December, shall only pay one subscription for the remainder of that year and the following one.

The Autumnal Meeting will be held at Doncaster in the month of October, and the next Annual Meeting will be held at Scarborough in the month of June. 1898.

Honorary Secretary, T. E. KING, 10, Museum Street, York.

METROPOLITAN BRANCH OF THE BRITISH DENTAL ASSOCIATION.

Composed principally of members of the British Dental Association practising within the London postal district. The Branch meets three or four times a year. One meeting in the Summer is devoted to Demonstrations, and the Annual Meeting is held in January.

The qualifications of Membership are similar to those in the other Branches.

Honorary Secretary, W. H. DOLAMORE, 37, Queen Anne Street, Cavendish Square, W.

BRITISH DENTAL ASSOCIATION, WESTERN BRANCH.

A person who is registered in the Dentists' Register shall be eligible for election as a Member of the Branch, provided he be of good character ; that he does not conduct his practice by means of the exhibition of Dental specimens, appliances, or apparatus in an open shop, or in a window, or in a show case exposed to public inspection ; or by means of public advertisements ; or circulars describing modes of practice, or patented or secret processes ; or by the publication of his scale of professional charges.

Any dental practitioner, being a member of the British Dental Association, who can subscribe to the conditions laid down in Bye-law 4, and has been recommended as eligible by any three members of the Branch may be elected a member of the Branch by the Council.

NOTE.—If the applicant be not previously a member of the British Dental Association, the Council has power to elect to the Association.

Hon. Sec., THOMAS ARTHUR GOARD, 6, West Southernhay, Exeter.

BRITISH DENTAL ASSOCIATION. EASTERN COUNTIES BRANCH.

Districts.

Norfolk, Suffolk, Cambridgeshire, Essex, Lincolnshire, Northamptonshire, Bedfordshire, Hertfordshire, and Bucks.

Bye Law.

Any Registered Dental Practitioner, who shall be recommended as eligible by any three members of the Branch, (one being from personal knowledge,) may be elected a member by the Council. The election to be by ballot; three black balls to exclude.

Honorary Secretary, A. HOPEWELL SMITH, Lindum House, Boston, Lincs.

BRITISH DENTAL ASSOCIATION, SOUTHERN COUNTIES BRANCH.

The Branch shall consist of Members, Honorary Members, and Associates. *No one shall be eligible for Membership who is not already a Member of the British Dental Association.* Any registered practitioner of good character, who does not conduct his practice by means of the exhibition of Dental specimens, appliances, or apparatus in an open shop, or in a window; or in a showcase exposed to public inspection; or by means of public advertisements, circulars, or notices, describing his qualifications, appointments, scale of charges, modes of practice, or patented or secret processes, may be elected a Member or an Associate. Associates shall be entitled to all the privileges of the Branch Association, but shall not be entitled to vote, or hold office therein.

BRITISH DENTAL ASSOCIATION, SCOTTISH BRANCH.

A person who is registered in the Dentists' Register shall be eligible for election as a Member of this Branch, provided he be of good character: that he does not conduct his practice by means of the exhibition of dental specimens, appliances, or apparatus in an open shop, or in a window, or in a show case exposed to public inspection; or by means of public inspection: or by means of public advertisements; or circulars describing modes of practice, or patented or secret processes; or by the publication of his scale of professional charges.

Any dental practitioner who can subscribe to the conditions laid down in Bye-law 4, who has been recommended as eligible by any of the members of this Branch, may be elected a member of the British Dental Association by the Council, and is eligible for election to the Branch.

Hon. Sec., D. BAILLIE WILSON, 29, Minto Street, Edinburgh.

STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF LONDON, LEICESTER SQUARE, W.C.

The object of the Society is the consideration of matters generally and specially appertaining to Dentistry. The affairs of the Society are managed by a Council consisting of a President, two Vice-Presidents, Treasurer, two Secretaries, Curator, and nine Councillors, these Councillors consisting of five senior and four junior students. The President is chosen from the past Students who have obtained their degree of L.D.S.; the Vice-Presidents from past Students with or without qualification.

The entrance fee for ordinary members is half-a-crown, and there is an annual Subscription of the same amount.

Ordinary meetings are held at 7.30 p.m. on the second Monday in every month, from October to March inclusive during the winter Session, also a meeting on the second Monday in May during the Summer Session. The annual meetings for the election of officers and other business is held on the third Monday of January in each year.

Every member has the power of introducing one visitor, not being a Student of the Hospital or School, to the meetings, with the consent of the President. Visitors are invited to take part in the discussion of the papers and clinical cases.

There is a Library and a Museum in connection with the Society, both being under the superintendence of the Curator.

The Council offer a prize, value £3 3s., at the end of each year, for the best paper read before the Society during that year.

STUDENTS' SOCIETY OF THE NATIONAL DENTAL HOSPITAL AND COLLEGE, GREAT PORTLAND STREET, W.

This Society, which was established March 16, 1878, was constituted for the encouragement and diffusion of knowledge in Dental Science, and for the promotion of intercourse among its Members: and all Students of Dental Science are eligible for Membership. All candidates for Membership must be approved by the Council before being proposed to the Society for election. The Entrance Fee is 2s. 6d., and the Annual Subscription, 2s. 6d., to be paid in advance. The Ordinary Meetings of the Society are held on the second Monday in each month, from October to June, both inclusive. The meetings commence at 8 p.m. precisely. Each member may introduce two visitors, not being Students of the Hospital or College, but the same visitors may not be admitted more than three times during one Session. The President is Dr. CUNNINGHAM and the Secretary Mr. H. M. GRIFFITHS.

THE STUDENTS' SOCIETY OF THE VICTORIA DENTAL HOSPITAL OF MANCHESTER.

The object of the Society is the consideration of matters generally and specially appertaining to Dental Science, and for the promotion of intercourse amongst its members.

The affairs of the society are managed by a Council consisting of a President, two Vice-Presidents, Treasurer, two Secretaries, Curator and Librarian, Editor of Transactions, and not more than four Students of the Hospital.

The General Meeting is held on the last Tuesday in every month from October to March inclusive and the Annual Meeting is held in May of each year.

Every member has the power of introducing two Visitors not being Students of the Hospital to a General meeting with the consent of the President.

STUDENTS' SOCIETY OF THE DENTAL HOSPITAL OF LIVERPOOL.

This Society is constituted for the consideration of matters generally and specially appertaining to Dental Surgery.

Candidates for membership must be approved by the Council before being proposed to the Society for election. Such proposals are posted during one meeting of the Society, and remain so posted until the next monthly meeting when the candidate is balloted for. No candidate is elected unless he have the votes of two-thirds of the members present. Nine to form a quorum.

Every member has the power of introducing two visitors, not being Students of the Hospital or School, to the evening meeting, with the consent of the President.

An ordinary meeting is held on the third Monday in every month, from October to March inclusive; the chair is taken at eight o'clock p.m. The annual meeting for the election of officers and other business will be held in March, on the third Friday to receive the Treasurer's and Secretary's report.

BIRMINGHAM DENTAL STUDENTS' SOCIETY.

The object of the Society is for the reading and discussion of Papers for the utterance of Dental Science amongst its Members.

Candidates for Membership must be proposed, seconded, and elected at one of the Monthly Meetings.

Every Member shall with the consent of the President have the power of introducing a visitor to the meeting, who may take part in discussions, but is not entitled to vote on any business.

An ordinary meeting is held on the last Thursday in every month, from October to March inclusive, at the Dental Hospital, Newhall Street, commencing at 6 p.m.

The Annual Meeting for the election of officers and other business, will be on the last Thursday in October next.

The President is J. DENCER WHITTLES, L.D.S. Eng.

All communications for the above Society should be addressed to H. P. JOSCELYNE, Hon. Sec., Dental Hospital, Birmingham.

THE EDINBURGH DENTAL STUDENTS' SOCIETY.

This Society, instituted in July 1835, was established for the consideration of matters generally, and specially pertaining to Dental Science, the advancement and welfare of its members, and the facilitating of social intercourse among them. These objects being promoted by means of Papers, Debates, Clinics, Casual Communications, Social Gatherings, and by the various sections of the Athletic Club of the Society.

Ordinary meetings are held in the Board Room of the Dental Hospital, on the first Monday of each Month, from November to March inclusive, and the Annual Dinner is held as near the date of the Annual General Meeting as convenient.

Membership is open to all, who are, or have been, Students of the Edinburgh Dental School.

The President for Session 1897-98 is Mr. J. Morris Stewart, L.D.S., and the Hon. Sec., Mr. J.-H. Gibbs.

DENTAL ASSISTANTS' ASSOCIATION OF GREAT BRITAIN.

The above Association has been established for the advancement and protection of Dental Assistants, and the temporary relief of Members when out of employment.

For further particulars apply to the Secretary, 30, Cursitor Street, Chancery Lane, London, W.C.

We have not been able to obtain any particulars of this Society this year.

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VOL. XL.

NOTES ON VARIOUS FORMS OF THE ARTICULATION OF THE UPPER AND LOWER TEETH.*

By J. E. GREVERS, of Amsterdam.

Mr. President and Gentlemen,—The subject which I have the honour of bringing before you this evening will, I hope, have some points which may interest you.

Having entered upon an investigation into the anatomical changes in certain deformed upper jaws, and not finding sufficient material in the anatomical museum of Amsterdam, I visited those of Vienna and Paris, and their museums of Anthropology, and it was while looking over their extensive cranial collections, that the question of the occlusion of the teeth was forcibly put before me.

A certain deformity which specially interests me at present is also marked by a certain abnormality in the occlusion of both upper and lower teeth, and in searching for examples of this, it was but natural that other variations than the one I was looking for, would come under my observation.

Variations in dental occlusion were frequently met with and—to even a superficial observation—it became evident that all the variations could be reduced to a limited number of groups.

In looking over the dental handbooks, I found almost all of the varieties more or less fully described, but there seemed to exist an uncertainty in their nomenclature, which might

* Read before the Odontological Society of Great Britain.

cause confusion, and I felt once more the urgent need of a terminology which would be definite, concise, and, if possible, universally applicable.

An attempt in this direction had been made by Carabelli in 1844. In his "Systematic Handbook of Dental Surgery" we find an attempt towards a universal nomenclature; and again, in recent years (1891) we find another by Sternfeld in the first volume of Scheff's "Handbook of Dentistry."

Both these classifications I have applied to my cases and compared their usefulness.

Allow me, Mr. President, to present to you briefly the nomenclatures and classifications proposed by these two authors.

Carabelli divides the variations into six groups :

- I.—*Mordex normalis*=normal bite.
- II.—*Mordex rectus*=edge to edge bite.
- III.—*Mordex apertus*=open bite.
- IV.—*Mordex prorsus*=prominent bite.
- V.—*Mordex retrorsus*=short or reverse bite.
- VI.—*Mordex tortuosus*=cross bite.

Prima facie, this classification would seem to meet all requirements, but on closer observation and on comparing one group with another, and at last, on putting it to a practical test, this classification, or, I should say, this nomenclature proved to be unsatisfactory and, in some cases worthless.

For instance, under the fourth group (*mordex prorsus*), Carabelli ranges a prominence of the upper jaw and also a prominence of the lower teeth, not combined—but each separate conditions of things which cannot be said to be similar.

The next group (V.—*Mordex retrorsus*) is in one sense complementary to the preceding and on the other hand opposite

to it. We find in this group collected cases which are called edge to edge bite and cases of projecting lower jaw.

A favourable reception by the dental profession was not awarded to Carabelli's proposition: in not one dental handbook we find it adapted or even reproduced. Probably the contradictions to which the system leads may account for this.

Many years later in 1888 Sternfeld published a little book—"Bissarten (forms of bite) und Bissanomalien (anomalies of the bite)" and quite recently in the first volume of Scheff's Handbook an article on this subject.

In the article in Scheff's Handbook Sternfeld introduces a nomenclature which has for its basis certain expressions which are used in anthropology.

He recognises two classes of dental occlusion, a physiological or ethnological and a pathological.

The first or ethnological comprises the following sub-forms.

I.—Orthognathia dentalis=normal bite.

II.—Prognathia dentalis=prominence of both upper and lower jaw. Prognathism.

III.—Orthognathia dentalis=edge to edge bite (as Egypt Celt.)

IV.—Progenia dentalis=slightly underhung, projecting lower jaw (as Frisians).

The second or pathological class is sub-divided into

I.—Orthognathia pathologica dentalis.

III.—Orthogenia pathologica dentalis.

(Both forms not described.)

II.—Prognathia pathologica dentalis=undue prominence of the upper jaw.

IV.—Progenia pathologica dentalis=undue prominence of the lower jaw, underhung.

V.—Opisthognathia pathologica dentalis=retreating upper jaw.

VI.—Opisthogenia pathologica dentalis=retreating lower jaw.

When the abnormality is limited to the upper jaw the suffix 'gnathia is used and 'genia to the lower jaw. The prefixes *ortho*—*opistho*—*pro(s)*—express the position of the teeth whether straight, backward or forward.

It seems to me to be very questionable if not objectionable to make use of terms which in another branch of science possess definite meanings, and to apply them differently to special and pathological cases. Both clearness and definiteness of expression must suffer from this.

We find a striking example in Sternfeld's classification sub. II. In his *prognathia ethnologica* we learn that both upper and lower jaws are prominent (prognathism), and in this he is in conformity with the teachings of anthropology, for Topinard—Anthropology—says of prognathism: "dont l'allongement ou la prééminence des mâchoirs est le trait principal et qui s'observe parmi les nations les plus dégradées de l'Afrique et les sauvages de l'Australie. . . . Le prognathisme est en somme, l'inclinaison des diverses lignes secondaires au profil de la face sur l'horizontale. . . . des lignes qu'on prend pour chacun des maxillaires supérieur et inférieur dans leur entier"; and on page 892 Topinard pictures various forms of prognathism in all of which the lower jaw is included. It appears therefore to be quite clear, and Sternfeld acknowledges this—*vide* II. *Prognathia ethnologica*—that by prognathism is generally understood the projection of both upper and lower jaw with a normal dental occlusion such as we see typified in the lower races.

To apply the term prognathia—even with a restriction such as pathologica—to instances of projecting upper jaws only seems to me illogical and misleading.

The terms—pro-, ortho-, opisthogenia however enticing, appear to me to be no less objectionable, for at the present day anthropologists are still far from being unanimous as to the meaning of these terms.

Virchow in his "Beiträge zur physischen Anthropologie der Deutschen mit besonderer Berücksichtigung der Friesen," to which Sternfeld refers, pictures a few skulls as being progenic, which according to Sternfeld ought to be classified as belonging to either Orthognatic or the Orthogenic.

The term *progenia* originated with L. Meyer, who had found among the inmates of insane asylums typical cases of projecting lower jaws, which, to him, were pathognomonic.

In studying this little paper of Meyer, and in looking over the drawing which he gives of his crania progenia, it seems to me that his description does not tally with the picture and leaves some doubt as to the real meaning of the word.

This uncertainty becomes stronger when we read Virchow's contribution and there find depicted what he considers to be progenia.

But a projecting lower jaw certainly cannot be considered to be pathognomonic for imbecility; this condition of the lower jaw is also met with in otherwise perfectly sound persons.

In the classification of Sternfeld there is no room for that class of teeth-occlusion which we call open-bite and cross-bite. The last mentioned form is entirely overlooked by Sternfeld.

Before the dental section of the International Medical Congress held in London in 1881, Iszlay of Budapest, read a paper entitled "Illustrative Skizzen zu Carrabelli's Mordex prorsus und dessen Verhältniss zur sogenannte Prognathia ethnologica und Meyer's Crania progenia," in which the author proposed a new nomenclature.

Ten years later (1891) this same author published a short

paper on this subject in the *Österr.-Ungar. Vierteljahrsschrift für Zahnk.*, a paper which might be considered to be a revised and condensed edition of the one read before the dental section in the International Medical Congress.

The nomenclature as here proposed seemed to me to be not only a correct one but also to be perfectly logical and a highly practical one.

To do away with the misnomer articulation of the teeth, Iszlay substitutes the word *odontharmosis* [from *odous* (tooth) and *αρμοζειν, ἄρμωσις* (joining)].

To determine the variations in *odontharmosis*, it is desirable to find some fixed or quasi-fixed point, and for this Iszlay has selected the upper jaw.

According to the position of the lower teeth we have the following possibilities in *odontharmosis*.

- I.—*Enarmosis* = projecting upper teeth, normal bite.
- II.—*Epharmosis* = projecting lower teeth, underhung bite.
- III.—*Prosharmosis* = edge to edge bite.
- IV.—*Opharmosis* = open bite.
- V.—*Dicharmosis* = cross bite.
- VI.—*Tyrpharmosis* = mixed up bite.

Sub. I.—*Enarmosis*. The upper teeth fall just in front of the lower ones, leaving hardly any space between the labial surface of the lower and lingual of the upper teeth, thereby covering the lower teeth but for a small distance. This condition may be called *eu-enarmosis*.

Supposing the same condition to exist, with this difference, that the space between the upper and lower teeth is much larger—projection of the upper jaw—then we have still an *enarmosis*, the upper teeth biting completely in front of the lower teeth, but no more an *eu-enarmosis* (normal bite). Here we place the prefix *dia* to *enarmosis* and call this condition a *di-enarmosis*. This projection of the upper jaw may amount to a few millimetres or more.

Still another form of enarmosis may present itself, *i.e.*, the upper teeth may cover the labial surface of the lower ones entirely, and these again strike hard against the palate. This condition is said to be dysenarmotic—dys-enarmosis.

Again, it is possible that a combination of the two last-mentioned sub-forms of enarmosis may be met with; *e.g.*, strong projection of the upper teeth, with deep occlusion of the lower ones against the hard palate, such a case can be perfectly and at the same time clearly described as dys-di-enarmotic. Everybody may at once understand what is meant.

In the next group (II. Epharmosis) we have just the reverse of the first group. Here the lower teeth come in front of the upper. Here, also, three possibilities may present themselves. We may have an eu-epharmosis, that is to say (1). the lower teeth will touch the upper ones, leaving no space between them, (2) a di-epharmosis, the space is much greater, but the upper are not entirely covered over by the lower teeth, and (3) a dys-epharmosis, the lower ones cover the upper teeth entirely, leaving very little space between. A combination dys-di-epharmosis, is possible.

The third group, Prosharmosis, comprises those cases in which the upper and lower teeth meet edge to edge.

The fourth group, Opharmosis, includes those cases in which, on closure of the teeth, the molars and bicuspid meet, but a greater or less open space is left between the front teeth.

We sometimes encounter instances in which the odontarmosis is such that the upper row of teeth meets the lower one, crossways, for instance, on one side the teeth stand enarmotic, and on the other side pros—or epharmotic; or on the other hand, the lower jaw may be responsible for the deviation. This is called dicharmosis, or cross-bite. Fifth group.

In the last group (VI.) are taken up those cases which cannot be classified under any of the preceding groups, the odontharmosis being so mixed up that almost every tooth has a different kind of mal-position. Under this head may be arranged certain cases of complicated irregularity.

It might be objected that in this classification no regard has been given to the etiology of the various forms of odontharmosis. This I believe to be no serious objection to the system. For instance, a di-enarmosis may be due to a contraction of the upper jaw, or to an eversion of the teeth, and if the etiology is known it may be appended; *e.g.*, di-enarmosis ex contractione maxillæ superioris, and so on.

Another objection may be raised against this system of classification, in that there is no room for certain "pictorial" expressions as senile mouth, in which the teeth of the upper and lower jaw are inverted; but this does not really detract anything from its value, and in these cases the odontharmosis may just as well be enarmotic or prosharmotic, if not epharmotic.

[The paper was illustrated by over seventy lantern slides.]

VALEDICTORY ADDRESS.*

Gentlemen,—In conformity with the usual custom of our Society at the end of the Session, I wish to conclude my term of office as your President, by briefly epitomising the chief work of the past session. We have had the usual number of meetings, and I feel the interest has been well maintained throughout them.

At our first meeting in November, a most interesting case of ankylosis of the lower jaw was shown by Messrs. Hern and

* Read at the Odontological Society of Great Britain.

Bland Sutton; Mr. Sutton had operated on the patient, a young lad, with most beneficial results as was proved by the power of speaking and masticating. A communication was read by Mr. Charters White "On a Method of infiltrating Dental and Osseous Tissues," in which he pointed out the utility of the process, and explained its manipulation.

At the December meeting, Mr. Sydney Spokes exhibited several lantern slides taken from specimens in University College and other Museums. The paper of the evening was read by Mr. J. F. Colyer on "Open Bite" and from it one of our best discussions resulted.

Our first meeting in the new year was on January 11th; a lively discussion was kindled by Mr. Albert who described two cases of transplantation, with a third case of transplantation of a tooth root, which was subsequently crowned. On this evening our Society had the good fortune to hear a paper read by Mr. Pearce Gould, on "Means taken to prevent subsequent deformity after excision of portions of the lower jaw." It is sufficient to say the paper was worthy of its author and the discussion worthy of the paper.

At the February meeting, Mr. Baldwin read a communication on "Cement and Amalgam Fillings," the discussion on which was so well supported, that it crowded out another communication on a kindred subject by Mr. J. H. Badcock. Mr. Badcock's paper on "Copper Amalgam: its merits and demerits," was therefore taken at the March meeting with Mr. Kenneth Goadby's paper on "The Discolouration of Copper Amalgams." An unavoidable absence abroad on account of ill-health prevented my being present at this and the following meeting in April; I have, however, read with much interest both papers and discussions arising from them. Had I been present, I should have been tempted to put in a word or two for Copper Amalgam especially in saving children's teeth, when we meet with the alarming fissured

condition and small coalescing crown cavities both in temporary and permanent molars. I agree with Dr. Flagg when he says of copper, "I regard it as a most valuable component of Dental Amalgams."

At the April meeting, held like its immediate predecessor under the chairmanship of Mr. John Fairbank, our senior Vice-President, the Microscopical Aspect of certain Lesions induced by Dental Caries was thoroughly gone into, in a paper by Mr. Hopewell Smith, who also showed and explained the use of a microtome designed by M. Choquet.

At the May meeting the Society was debarred from the pleasure of seeing an exhibition of lantern slides, that Mr. Tomes had ready for its delectation, by the failure of the electric light that, due to some occult reason, refused to lend its aid. Fortunately there was no lack of material for discussion, as Mr. Colyer introduced the subject of pain, arising from galvanic action.

Mr. Baldwin read notes on a case of an unerupted maxillary third molar causing inflammation in the substance of the cheek, simulating epithelioma, whilst Mr. Humby brought to the notice of the Society his ingenious adaptation to the dental engine of an angle mallet. This then, in brief, gentlemen, represents with the paper brought before us to-night by Dr. Grevers, the more ostensible work of the session.

Our Society has lost during the past year, from death and resignations, fifteen members, and notably amongst the former, Dr. Magitôt, of Paris, who was a corresponding member, and I must also mention Sir Benjamin Ward Richardson. He was one of our oldest Honorary members, and at the time of his death his name was on our Secretary's list for a contribution to the debates of the Society, thus showing the interest he took in it to the last. I am pleased to say the number of new members, including those elected this evening, makes good, numerically, the losses we have

thus sustained. Of the finances of the Society, it is not necessary for me to speak, they are under the charge of our careful Treasurer and whose report gives our standing in this important matter. You will see that we have a substantial reserve fund, and it is fortunate that it is so, as the time will be immediately upon us when to advance the interests of the Society this will have to be trenched upon.

Our Museum and Library under their excellent custodians make steady progress and represent collections of specimens and books invaluable for study and reference. Both collections will be seen to much greater advantage when arranged in a suitable building, than in their present cramped quarters. The important question to which I alluded in my opening address as to our future domicile, has not been neglected by your Council; although a final solution has not yet been reached, matters are so far matured that my successor and his council will find the difficulties that have surrounded the question much simplified.

The enforced rest that I took in the early spring, due to cardiac weakness following an attack of influenza, whilst obliging me reluctantly to absent myself from the meetings, afforded an opportunity of visiting a portion of Greater Britain beyond the Southern seas. In a most enjoyable trip to Cape Colony, Natal, the Transvaal and Orange Free State, I got some insight into what our profession is doing in those parts.

I visited as many professional brethren as I was able, and renewed some old acquaintances.

Whilst there is more to deplore in general status than with us at home, there is a slow movement towards a better condition of things.

The importance of a special training and value of proper credentials is being recognised by the powers that be in both Cape Colony and Natal. The colonies, however, still lack

the *esprit de corps* which here binds us together in a common brotherhood, and is so essential for maintaining the integrity and efficiency of its members.

Advertising in the public papers and journals is very frequent. I was surprised to find a bold transgressor in this respect even received as a member of a leading Colonial Club, showing that public opinion needs much educating in that locality.

In speaking of this subject I should like to point out to members who have any intention of visiting the Colonies, the importance of discovering the code of professional ethics of those they may be likely to come across. It causes much heartburning when the worthy fellow, duly qualified and pulling hard against the stream is passed by, and his showy, but lax rival, with possibly a long purse or plausible manner is granted the right hand of fellowship in his stead.

In Natal, with an European population of 40,000 there are thirty dental practitioners, five only of whom have, I believe, a British dental qualification.

The populace in the colonies generally has much to learn in the patience requisite for obtaining satisfactory results from prophylactic dental surgery, and of course the practice is almost entirely amongst the white population. One exception to this that came under my notice I should like to mention. When at Maritzburg I made a short excursion up in the hills to visit Teteleka, a Kaffir chief, who with his fifteen wives lives in true native fashion on his demesne of some thirty miles square. His morning costume at the time of my visit, as you will see by this photograph which I took of him, consisted simply of his girdle or mutjki, made of foxskin. When chatting to him through an interpreter in the dim light of his kraal, I noticed the absence of an upper central and lateral incisor in his otherwise splendid denture. Drawing his attention to this defect, "Man's fist," was the

explanation, and at the same time he dived his hand into the roof of his hut and brought out to my surprise a couple of artificial teeth neatly mounted on a plate which he deftly inserted into position. This to my mind presented a curious link and contrast between savage life and a too frequent concomitant of civilization. I subsequently found in talking to one of the leading dental practitioners in Maritzburg that the teeth had been made by him. When the chief visited him he was usually accompanied by several of his young braves, each one of whom insisted on losing a sound tooth by way of being on a par with his chief. My dental friend was constrained to waive his conservative tendencies rather than find the integrity of his window-panes and furniture impaired by the sable retinue.

The operations were, I was assured, borne with stoical indifference and the results carried away in triumph. I must not, however, longer dwell on such distant scenes, and indeed feel I must apologise for introducing them at all.

Before vacating this chair, I should like to tender to the members of the Council my best thanks for their regular attendance at the meetings, and to the Secretaries for their close attention to the inner workings of the Society. Having done this, it only now remains for me, gentlemen, to say farewell and to congratulate you on your choice of my successor.

Your new President, Mr. W. E. Harding, is one of my oldest friends and one whom to know is to respect and admire. May the Society under his leadership have every success.

THE EXTRACTION OF FRACTURED AND DIFFICULT ROOTS.*

By WM. SIMMS, L.D.S.I.

There are some difficulties in the extraction of teeth which perplex and even baffle the most experienced and expert; and, while say the apical third of a fractured root may be left in the alveolus without much remorse or the fear of painful consequences to the patient, there is still great satisfaction to the Dentist when he can say of a tooth he has attempted to extract that it is "out"—the tooth, the whole tooth, and nothing but the tooth.

An important factor in the firmness with which teeth are held in their sockets is the density or otherwise of the surrounding bone. And it unfortunately happens that where the bone is most dense, the roots of the teeth are most inelastic and unyielding.

These are some of the qualities which impress the experienced Dentist when, after an examination of a tooth to be extracted, he comes to the conclusion that he has got a difficult case before him.

The roots of all teeth are more or less yielding, as well as the bone with which their roots are enclosed. If this were not so, the extraction of all teeth except those having conical roots would be impossible without fracture of the alveoli.

That the roots are elastic, and capable of some small amount of bending, may be demonstrated by selecting, say, an upper molar tooth, preferably from a young patient, and using a pair of pliers, it will be found that the roots may be bent towards each other, or away from each other.

The purpose of the writer in this "Casual Communica-

* Read before the Manchester Odontological Society.

tion" is not to deal generally with the subject—a very important one—of the extraction of difficult teeth or roots, or of fractured teeth or roots, but to suggest one method which he has found useful and successful in some cases which have come within his experience. And while his experience of this method has in the course of some years been sufficient to prove its worth in cases of fractured teeth, he is not anxious to claim a *large* experience of it.

The recital of several typical cases will best explain the writer's method.

1. Several weeks ago in the attempt to extract a left upper first bicuspid, after carefully applying force with the forceps, the ominous sound of a fracture was heard and felt, and the tooth immediately came out minus half of the buccal fang. To extract this portion with either forceps or elevator were impossible ; if our friend, Mr. Dougan, will allow the "expression" of that word, so with the aid of a cross-cut bur and the Dental Engine the septum of bone between the two roots was cut away, and the root immediately dislodged with an excavator.

The same simple method can be similarly applied in the fracture of a lower molar root or an upper molar root when these fractured remains are beyond the reach of the forceps.

2. A first lower molar presented itself some time ago with the following conditions :—

The crown of the tooth had decayed and broken off. The portion remaining was hard and dense, and below the surface of the alveoli, which were also hard and dense and thick.

The attempt to extract by means of root forceps failed, as it was impossible to get the blades of the forceps deep enough. Recourse was had to the Dental Engine and using a cross-cut bur. The two roots, which were strongly joined together, were divided almost to the bone, and portions of the alveoli, principally on the buccal side, were also burred away.

The root forceps being now used, the two roots were separately and easily extracted.

These two typical cases will be sufficient to explain a method which possibly may not be new, but which the writer has never seen mentioned, and which he commends to the notice of any to whom it may be new.

The operation of burring away bone is not very painful and is rapidly performed, but the pain may be diminished or altogether avoided by the use of cocaine.

ORAL SURGERY.

By EDMUND W. ROUGHTON, B.S., M.D. (Lond.), F.R.C.S.
Eng.

DISEASES OF THE GLANDS.

TUMOURS OF THE PAROTID.

Tumours of the parotid are not uncommon, and several varieties are met with ; but there is one tumour so much more common than the rest, that it is known as the " parotid tumour."

The Parotid Tumour is composed partly of connective tissue and partly of epithelial elements. The connective tissue is partly fibrous, partly myxomatous, and partly sarcomatous. Nodules of hyaline cartilage are often interspersed throughout the tumour. The sarcomatous elements vary in amount and in kind ; sometimes there are none, sometimes the cells are few and spindle shaped, sometimes they are more numerous and oval or round in shape. The epithelial elements bear a more or less close resemblance to the normal glandular structure. Cysts are not uncommon,

and result from liquefaction of the myxomatous tissue the tumour.

The clinical characters of the tumour vary somewhat. When small they are firm and somewhat elastic to the touch, smooth or somewhat lobulated on the surface, of rounded outline and freely movable. As they increase in size they project from the side of the face (Fig. 68), forming a swelling as large as an orange, or even larger. The deeper part of the growth



Fig. 68.

often passes under the jaw and projects into the pharynx or fauces and comes into relation with the styloid process and its muscles, the carotid vessels and the large nerves in the neighbourhood. The surface of the larger tumours is usually markedly lobulated and unequal in hardness, in places it is as hard as cartilage, whilst in other parts it may be

quite soft or even fluctuating. The rapidity of growth varies greatly; as a rule they grow slowly and may take years to reach the size of a walnut, but at any time they may take on active growth and double their size in a few months.

In addition to the ordinary Parotid Tumour just described, *fibromata*, *myxomata*, and *enchondromata* are also sometimes met with in the parotid.

Spindle-celled and *round-celled sarcomata* are occasionally met with in this region, springing either from the gland itself or from the neighbouring bones or fasciæ. They grow rapidly, soon implicating surrounding parts and often presenting in the pharynx.

Carcinomata of the parotid are fairly common. They are usually of the soft variety (encephaloid), but sometimes scirrhus cancer is met with. These tumours grow very rapidly, are deep-seated and fixed, and very soon involve the skin, which becomes brawny and of a reddish purple colour.

Diagnosis. The most important point is to distinguish between an innocent and a malignant tumour of the parotid. The simple tumour is of slow growth, well-defined, movable, and does not involve the skin, whereas the malignant tumour is of rapid growth, ill-defined, fixed, and soon involves the skin. The only swelling likely to be confounded with a parotid tumour is a chronic enlargement of the lymphatic gland situated just in front of the neck of the lower jaw. Sometimes the diagnosis is very difficult, but the greater fixity of the gland, the presence of tenderness, and the enlargement of other lymphatic glands will usually suffice to discriminate the lymphatic gland from a parotid tumour.

Treatment. The treatment of tumours of the parotid consists in extirpation with the knife. As a rule no operation should be attempted for the removal of a malignant parotid growth, as nothing short of completely extirpating

the whole gland (a difficult and dangerous operation) is of any avail, and recurrence within a very short time is almost certain.

In removing innocent tumours great care should be taken that no lobule or outlying portion is allowed to remain. The skin incision should be made vertically over the tumour, and of sufficient length to fairly expose the whole mass. The deeper dissection should be carried on from below upwards, or from behind forwards, so that one division of the blood vessels may suffice. The facial nerve must be spared as much as possible by working parallel to its branches; a certain amount of facial paralysis is very common after removal of deeply seated parotid tumours.

DISEASES OF THE SUBMAXILLARY GLANDS.

The commonest cause of enlargement of the submaxillary gland is obstruction of its duct by a calculus. This condition has already been described under Diseases of the floor of the Mouth.

Tumours of the submaxillary glands are very rare. I have on one occasion removed a small tumour from this situation which exactly resembled in microscopic character the ordinary "parotid" tumour.

Dr. W. H. SHRIVER'S method of setting a Logan crown consists in first making a gold cup, into which the cervical end of the root snugly rests; an oblong square hole is then made in the cup to admit the Logan pin; the crown is then ground and fitted to the cup in position on the root; the concavity at the cervical surface of the crown is then packed with pellets of cohesive foil till full; a suitable sized disk of pure, thin gold is then punctured by the pin and forced snugly against the cervical surface. The crown thus treated is placed in position in the mouth and the gold disk attached by means of wax to the cup over the root, all of which are withdrawn together, invested and soldered.

Western Journal.

British Journal of Dental Science.

LONDON, OCTOBER 1, 1897.

A SO-CALLED INTERNATIONAL EXHIBITION.

An Exhibition bearing the sonorous title of the "International Inventions Exhibition of Industry, Domestic Sanitation, Alimentation, Hygiene, and Dentistry," has lately been held in the Polytechnic Institute in London. The object of this article is to explain to our professional brethren, and more especially our continental *confrères*, the working of this wretched affair, and the true value of any award which may have been granted to any exhibitor.

Since Prince Albert organised the first great International Exhibition in Hyde Park, International Exhibitions of Arts and Industries have become fixed institutions in most civilized countries. They are inaugurated under the highest auspices, and Juries, composed of men most distinguished in Art and Science, award prizes, which, as the result of honest competition, are highly esteemed. The exhibition with which we have the unpleasant task of dealing is a very different affair. It was a private venture, carried on in a private building, the Polytechnic Institute in Regent Street not corresponding to state-controlled Polytechnics on the Continent, and having no official significance. The exhibition had originally been intended for a Dental Exhibition only, but as no self-respecting dentist or dental manufacturer would be likely to give his countenance to an exhibition instituted under such auspices, the original scheme was abandoned and the scope of the exhibition was enlarged to admit of Inventions of Industry, Domestic Sanitation, Alimentation

and Hygiene. Even this large scope seems to have been exceeded, for we find included in the list of exhibits an original oil painting and some sporting prints, and odds and ends which can hardly be classed under any of the above headings. The Honorary Committee was composed of gentlemen whose names—gathered we know not how or where—are unfamiliar to us, and if they are men of any standing, they must heartily regret that they have allowed their names to be used in connection with this affair. The President and Committee of the Jury were more obscure, and equally unknown to the Dental profession. Among their number is a dentist registered as being in practice before the Act, and as he is the only dentist in evidence, we presume that his critical judgment would decide the allotment of awards in the dental section. But of awards, more later on.

Leaving the bulk of exhibits, some two hundred in number, nearly all hailing from Germany and Austria, and comprising such things as military coats, bitters, oil paintings, safety window sashes, bicycle brakes, "lemon juice cure," and pastry, let us turn our attention to that part of the exhibition which is of greatest interest to us, namely the Dental Section. There were a few, a very few, exhibits having anything to do with dentistry, the greater number of these being tooth-tinctures, toothache specifics and dentifrices, all hailing from Germany, Austria and Italy. A few foreign artificial sets of teeth were on view. Firms of high-class reputation in England and America were conspicuous by their absence in the Dental Section, while we also failed to observe the names of any leading German and Austrian houses. True, the name of a good Dental Manufacturing firm in America was down on the Catalogue, but when this firm found out the real status of the Exhibition, they refused to exhibit, and made other and better arrangements for showing their goods. As regards the awards. These, we are informed, consisted of medals which had been paid for at the following prices : silver gilt, thirty shillings, and bronze gilt, one pound. We do not know how many medals were dis-

tributed, but we may express an opinion that no one need have gone empty away.

It will be seen from what we have said that the whole thing was a hideous fiasco, at least from the point of view of public benefit and public importance. Whether it was a success from a promoter's point of view we neither know nor care, though we are afraid he made money by it as exhibition space must be paid for by exhibitors, and medals can be manufactured at a small cost. Of one thing we may be sure that the exhibitors after having paid for their medal, will no doubt advertise that their inventions, their dentifrices, or their sets of artificial teeth have received a medal at the "International Inventions Exhibition of London." We do not fear that English people will be much deceived, but we are afraid that many of our Continental neighbours will be. We therefore give them a friendly word of warning.

DENTAL SURGEONS AND BOARDS OF GUARDIANS.—Our promised article on the subject has been postponed until our next issue to make room for our present Editorial Article on the curious methods of the "Exhibition promoter."

THE SHEFFIELD ROYAL HOSPITAL. DENTAL DEPARTMENT.—The Board of Management have received intimation from the Royal College of Surgeons of England and the other examining bodies, that the dental department of the Sheffield Royal Hospital is now recognised as a dental hospital where students may take out the dental hospital practice required by candidates for the license in dental surgery. The department is highly appreciated, and is doing good work. Sheffield has been proving itself a model of enterprise and progress. We gladly hail every new centre of dental education in the Kingdom, and hope that the example of our largest towns will be followed by our other industrial centres.

AN AUSTRALIAN COLLEGE OF DENTISTRY.—An Australian College of Dentistry in Melbourne has now been declared

open, and its curriculum has been formulated and published. The Staff, both special and medical, contains the names of leaders of both professions. The preliminary work has been largely undertaken by Mr. John Illiffe, the Vice-President of the Institution, and Dr. A. P. Merrill the newly appointed Dean. Already a large number of students have been enrolled. We wish the new College all success.

MEDICINE-TAKING EXTRAORDINARY.—Dr. Dykes, writing to the *British Medical Journal* quotes the following interesting case. "In 1817, at the Lincoln Assizes, in an action, Wright v. Jessop, the plaintiff, an apothecary of Bottesford, sought to recover from the defendant, a batchelor of opulence, residing near Lincoln, £787 18s. for medicine and attendance during twenty-five years. By the statement of the plaintiff's counsel it appeared that the defendant was of a hypochondriacal turn, and had taken pills for a great number of years. He used to have from 600 to a 1000 pills sent to him at a time, and in one year he took 51,000, being at the rate of 150 a day. There were also thousands of bottles of mixture. From the ravenous propensity of the patient for physic it was deemed necessary to call in two physicians, who, enquiring of the defendant what was the course of medicine and nourishment he pursued through the day, answered as follows: 'At half-past two o'clock I take two spoonfuls and a half of jalap, and then a quantity of electuary; then I sleep till seven, and repeat the dose of jalap and electuary; at nine o'clock I take fourteen pills of No. 9 and eleven pills of No. 10 to whet my appetite for breakfast; at breakfast I eat a basin of milk; at eleven I have an acid and alkali mixture; afterwards I have a bolus; and at nine at night I have an anodyne mixture, and go to sleep.' After some progress had been made in the evidence a compromise took place, the plaintiff accepting a verdict for £450."

A SEPTUAGENARIAN STUDENT.—Medical men justly pr themselves on their devotion to their noble profession, but very few of them show it so practically as M. Boryski, a

student of Warsaw, who has just obtained his diploma at the age of 75. This persevering son of Æsculapius began, says the *Daily Chronicle*, his studies at the age of 21, but funds failed him, and he took a spell of twenty years as a tax collector, returning then to his first love with a modest competence. Just then a Polish rising occurred, and he became implicated in it, with the result that he was sent for life to Siberia. For thirty-two years he worked in the silver mines, obtaining at last in 1895 a remission of his sentence. Losing no time, he hurried back to Warsaw, resumed the thread of his educational course, and is now fully qualified for practice.

THE UNION COLLEGE OF PAINLESS DENTISTRY.—This “College” would seem to be not so much an educational Institution, but rather a Philanthropic and Humanitarian Society. This is its advertisement:—“Full set of teeth, 2 dols. In order to increase our clinic we want every man, woman, and child in Chicago to have their mouths examined by the professors of this college. All your work will be done free until August 22. Teeth extracted without pain; teeth cleaned; silver fillings, soft fillings free! Easy payment plan. Union College of Painless Dentistry. Best equipped college in the world. Open nights and Sundays.”

MODERN ALCHEMY.—According to the *British Medical Journal*, the sea-serpent story is beaten. Silver has been transmuted into gold by the simplest possible process, and this at a time when currency is a most vexed question, in which America more than any other country is interested. It is not, therefore, a matter of intense surprise that the transmutation has been effected by an American investigator. He has converted Mexican dollars (why did he not start with pure silver?) into an ingot consisting of a mixture of gold and silver more than nine-tenths “fine,” from three-fifths to two-thirds of the precious metal being found to consist of

pure gold. Mexican dollars, by the way, contain also copper. All that is required for this transmutation is extreme mechanical pressure. There can be no doubt of America's capacity to supply an abundance of this commodity. Pressure acts, doubtless, upon the silver atoms and gives them a greater density, so that from 108 the atomic weight shoots up to 196. That is, starting with a white metal—namely, silver—of a specific gravity of 10, the effect of an enormous pressure is to increase this gravity by about double (the specific gravity of gold is 19.5), the resulting mass changing colour—presenting, in fact, all the appearance as well as the properties of the noble yellow metal. Bimetallism is doomed and America's financial superiority as a nation amongst nations ensured, while gold plates and gold fillings may now be indulged in, by those hitherto too poor to afford such luxuries.

To line rubber plates with aluminum, roll the aluminum to twenty-eight guage, anneal the metal with a blow-pipe until it becomes white like unburnished silver. Thoroughly dry the cast, then with the two thumbs press the aluminum on the cast and burnish it to place, commencing in the centre and working toward the edge. Prepare for adhesion of the rubber; use a chisel and carve the plate, making small hooks about one-thirty-second of an inch long; in rows; then reverse the rows, turning the hooks in opposite directions until the surface of the plate is covered; anneal again and adjust the cast; wax teeth in place as usual and pack. The pressure under the press will make a perfect adaptation of the aluminum to the cast.

Dominion Dental Journal.

AN OBTUNDENT FOR SENSITIVE DENTINE.—Carbolate of cocain.

R.	Cocain	...	...	...	4 per cent.
	Carbolic acid	...	...	...	50 per cent.
	Benzoin gum	...	...	...	50 per cent.

Dental Cosmos.

Abstracts of British & Foreign Journals.

SOME PRACTICAL HINTS.

Compiled by J. P. HARPER, D.D.S., St. Louis, Mo.

Pulpitis—Acute.—Apply dam, dry, and remove cause ; if pain ceases and pulp not exposed, and tooth has ached but a few hours, cap pulp and fill temporarily ; if patient is of nervous temperament or anæmic, or the tooth has ached more than five hours, devitalize.

Pulpitis—Chronic.—Devitalize.

Chronic Alveolar Abscess with fistula.—Clean canal with hydrozone ; force tepid water into tooth and out through fistula, follow with hydrozone ; dry canal and force carbolic acid, 95 per cent. through tooth and fistula, dry and fill.

Chronic Alveolar Abscess with Fistula but no access to Fistula through Tooth.—Treat tooth as for Putrescent Canal. Treat abscess with syringe through fistula with tepid water, followed with hydrozone without pressure, then carbolic acid, 95 per cent. Repeat in six days if not healed. If necessary, enlarge opening through process to apex of root with bur.

Chronic Alveolar Abscess without Fistula.—1. Clean cavity, open chamber and canals, clean canals with hydrozone, dry, insert disinfectant for four days, seal temporarily and puncture.

2. Test with hydrozone, dry with alcohol, force 95 per cent. carbolic acid through roots into abscesses, dry with cotton and fill roots.

Acute Abscess.—Lance gum over apex of root ; syringe abscess with warm water, follow with hydrozone without pressure, then 3 per cent. carbolic acid and dismiss patient until inflammation subsides.

When inflammation subsides treat as for abscess with fistula or blind abscess as case indicates.

Putrescent Canal—Only.—1. Place disinfectant in tooth, avoid use of broaches in canal, seal temporarily and puncture ; dismiss patient for four days.

2. Clean canal with hydrozone, dry, insert dressing of essential oil, seal tight, and dismiss patient for one week.

3. Test with hydrozone, dry and fill roots.

Pyorrhæa Alveolaris, (Rigg's Disease.)—Remove with scalers all deposits around neck of tooth, and all calcareous deposits from root of tooth under the gums. Syringe pockets with hydrozone and apply dressing of trichloracetic acid 5 per cent. Repeat in three days. Continued presence of pus will indicate that all deposits have not been removed from root. If teeth are loose, ligate. A mouth-wash of hydrozone is essential—the latter to be diluted with two to four parts of distilled water to one part of hydrozone.

Bleaching.—Apply dam. Remove root filling from canal slightly beyond neck of tooth. Remove decomposed and discoloured dentine, saturate cavity and canal with hydrozone and dry thoroughly with hot air. Repeat saturation and drying until tooth is desired shade. Fill canal and bulk of cavity with white cement; finish with gold.

Southern Dental Journal.

COMBINATION FILLINGS.

By Dr. MOYER, Galt, Ont.

I believe in combination fillings, where they can be properly used, where there is room or sufficient depth of cavity for such a filling.

Combinations with gold are: Cohesive foil with non-cohesive gold foil, 1 to 2, the non-cohesive folded within the cohesive. Utility: Thermal changes not so severe, packs more readily, makes a solidier filling, with stronger and better margins than either form alone.

Gold with Tin.—The only filling that may probably exclude bacteria. Use indicated in deep cavities in posterior teeth, where the dentine is of low grade. If gold alone be used the tooth may not be preserved. Tin, being softer, is more easily adapted to the walls of the cavity, especially at the cervical margin. Gold may then be added, or gold and tin in alternate layers. Utility: Better adaptation, and moisture in soft dentine oxidizes the metal and the stannic oxide fills the tubuli, and covers the surface of the dentine with an insoluble lining, and decay is impossible; more economical.

Gold with Amalgam.—One of the very best for large cavities in teeth of ordinary structure, especially where cavities go far below the gum. The visible part of filling

gold, the rest amalgam. If filled at one sitting, use matrix and press first few layers of gold with kid strip. If two sittings, first sitting, add amalgam ; second, drill retaining pits in amalgam and thus anchor gold. Two sittings are needed for incisors. Utility : Better adaptation, dentine does not give way as in the use of each separately, saves time for both patient and operator, and is more economical and more permanent.

Gold with Oxyphosphate or Oxychloride.—The acme filling for large crown cavities in such positions as may be properly reached by the operator. Press the foil into the soft cement for anchorage, or let cement harden, and drill pits or grooves into it for anchorage. Utility : Perfect adaptation, in better harmony with tooth structure than gold, economizes time, patience, tooth substance and gold, prevents thermal changes from causing injury to pulp.

Amalgam with Cement.—The most nearly perfect filling for deep cavities in posterior teeth where patient will not pay for gold or where cavity is difficult of access. Use as much cement as possible without covering margins of cavity, leaving sufficient anchorage for amalgam covering. Utility : Perfect adaptation, little or no effect from thermal changes ; cement adheres to walls of cavity and retains filling with least amount of undercut ; economy and comfort to patient ; less amalgam used, therefore, less change of form.

Cement with gutta-percha.—Where cavities extend under the gum margin, cover the bottom of the cavity and the cervical margin with gutta percha and prevent the possibility of a space being formed between the filling and the tooth, so frequently found when cement is used alone, owing to the disintegration of the cement at that point.

Dominion Dental Journal.

In swaging any metal I always oil my dies to prevent, as far as possible, the baser metals adhering to the plate, and before annealing wipe off all trace of the baser metals. After annealing and partial swaging wash the plates in sulphuric acid and boil them so as to peel off the base metals. I prefer the use of cotton seed oil for mixing modelling sand to that of water, the steam from which caused the formation of air bubbles in the metal cast.

L. P. HASKELL, in *Items of Interest.*

DISEASES OF THE HORSE'S TEETH.

When it is considered what an enormous amount of work is required of the teeth in comminuting tons of dry, hard material in one year only of a horse's life, it is not surprising that we should meet with diseased teeth, but rather that irregularities and abnormalities are not more frequent. Again their importance in relation to digestion is too often forgotten, or their capacity for the work required not called in question.

It has been estimated that an average horse will take 75 minutes to eat 4lb. weight of hay, which he swallows in from 60 to 70 portions, but the want of saliva or dental imperfections may prolong the time indefinitely, or he may acquire a habit of bolting his food without proper insalivation.

Inability to use the teeth may not be due to defects *per se*, but to injury or dislocation of the jaw, paralysis, or tetanus. Crowding or overlapping of the incisors gives a horse a very unsightly appearance, nor is it remedied to any extent in the young by growth and development of the jaw, as horses at three years old have the jaw bones nearly as large, though not of quite the same shape, as they will be at full maturity.

In the case of an animal much valued there are persons to be found who would take the trouble to clean the teeth daily with a brush and carbolic powder, and the horse with such care would probably recover. But in the majority of cases the subjects of alveolar disease get passed on to a new purchaser, whose attention is only called to the disease when evidence of indigestion and imperfect mastication has led to an examination of the mouth.

Caries, or Decay of the Teeth.—While broken, discoloured and diseased incisors are not rare, true caries may be said to be almost confined to the molars. Ugly growths of *Crusta petrosa* upon a broken incisor may be mistaken for decay, or the condition referred to in connection with the alveolar processes.

Causes of decay are not easy to define in animals like the horse with compound teeth, which continue to grow until an advanced age.

The progress of decay is, in some instances, very rapid, and in others so gradual as to be scarcely perceptible. With the appearance of a breach in the tooth an offensive odour is the result of the decomposition continually going on, and infecting by degrees the sound portion of tooth structure. In

the human subject efficient cleaning and stopping either wholly arrests the process or retards it almost indefinitely, but those operations have not been applied to the horse. When the fang of the tooth is diseased and the blood supply arrested, it dies and ceases to offer the required resistance to the opposing tooth in the other jaw. In this way an abscess is formed in the jaw.

Symptoms.—These are frequently unobserved until some difficulty in mastication suggests an examination of the mouth. Dropping the partially chewed morsel, dribbling of saliva, and evidence of discomfort when feeding are the common signs, and, in addition, the offending members may cause fœtor of the mouth from the lodgment of decomposed food within the cavity of the tooth, which, on being lightly struck, will cause the animal to flinch with pain. The gum in the immediate neighbourhood may be red, swollen and inflamed.

Treatment.—No treatment is likely to be effectual without the removal of the diseased tooth, as the cause and extent of the disease is not always apparent. If it could be ascertained in a given case that decay was caused by an injury, such as biting down upon a nail or other hard body, and there was reason to suppose that the nutrition of the tooth was not interfered with, the necrosed portion might in some instances be removed with the drill and the cavity cleaned out by way of preparation for a hard amalgam or other stopping. But, practically, the only remedy is extraction, an operation which requires skill and manual strength on the part of the operator.

Sydney Mail.

EXCISION OF PART OF THE LOWER JAW.

At the Middlesex Hospital, Mr. Pearce Gould operated on a man, æt. 46, the subject of an epithelioma, which implicated the gum at the site of the right lower molar, and a considerable portion of the cheek. There was one enlarged lymphatic gland below the jaw. An incision was made from just to the right of the symphysis, along the border of the jaw, and up on the posterior edge of the ramus; the skin was reflected well up on to the face. An incision was then made

on to the mandible, a quarter of an inch from its lower and and posterior border; with a dental engine the bone was drilled at several points along this line and the intervening portions of bone were cut through with a strong bur. The jaw was then sawn through at the level of the canine tooth which had been previously extracted, and posteriorly through the middle of the ramus. The mouth was then widely opened, and Mr. Gould divided the mucous membrane well outside the infiltration and removed the affected soft tissues, the alveolar process of the jaw, and the adjacent body and ramus, except a thin layer of bone forming the extreme border of the body and ramus. After the hæmorrhage had been stopped the mucous membrane of the floor of the mouth was stitched to that of the cheek: the skin wound was sewn up and a drainage tube passed from the angle of the jaw into the mouth. Mr. Gould pointed out that the earliest symptom of the disease was loosening of the molar teeth six months ago, but the patient did not notice anything besides this till within a month of the present operation, when a small lump was felt which had since then rapidly increased. He said that the operation he had performed was open to criticism in two particulars:—1. It might be objected that as the growth had affected a considerable portion of the mucous membrane of the cheek, he ought to have excised the whole thickness of the cheek, but, finding that the skin could easily be lifted up in a roll and moved freely over the malignant growth, he believed he was justified in saving the skin; he had taken care to remove a good layer of tissue all around the malignant infiltration. 2. Further, it might be objected that, as the growth had involved the lower jaw, the whole depth of the bone should have been removed; the experience of excising merely the alveolar portion of the jaw in such cases had not been satisfactory, but the operation he had done was much more extensive, and had involved the removal of the whole depth of the bone, except its extreme border. It was, he thought, very important to preserve this, as it not only saved the man from the grave deformity which would otherwise have resulted, but it preserved to him the power of mastication. The operator had been careful, as was seen, not to detach the periosteum from this thin layer of bone, and he hoped that the stitches in the mucous membrane, as well as in the skin, would hold, and that this thin strip of bone would quickly be imbedded in soft tissues, and that its vitality would so be preserved. The loss of blood at the operation was small, and Mr. Gould remarked that the chief

danger would be septic broncho-pneumonia, and nothing so predisposed to this as the passage of blood into the lungs at the time of operation. This, he believed, had been entirely prevented in this case. The after treatment would consist in careful efforts to prevent decomposition in the mouth ; for this purpose this cavity would be washed out every two hours with an antiseptic solution. The patient would be fed with a feeder, to which a long piece of rubber tube had been attached. The man had already practised the use of this, and had learnt to pass the tube into his pharynx, and so to introduce food into the stomach without letting it pass over the wound. It was very useful in excision of the tongue or lower jaw, Mr. Gould considered, to teach the patients before the operation, both to thoroughly wash out their mouth and also to feed themselves in the way above described ; if this precaution were not taken, both feeding and washing the mouth frequently caused a good deal of disturbance at a time when quiet was of the greatest importance.

It is satisfactory to state that the patient is making an excellent recovery, and is sitting up and taking food well. The wound has all healed except along the track of the drainage tube.

Medical Press.

LINING CAVITIES WITH VARNISH.

By S. B. PALMER.

When sensitive dentine has been dried, the surface is not sensitive ; if filled while dry with varnish, or paraffin melted in, sensitiveness does not return. Such a coating is not metal, and vitality is not destroyed by contact with it. If heavy varnish is used under amalgam the fillings remain bright on the hidden surfaces, showing that there is no leak. Phosphate fillings are benefitted by thus protecting the dentine from the effects of acid. Nothing can be better than a gold filling properly put into a varnished cavity.

Cosmos.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, June 14, 1897. Mr. R. H. Woodhouse, President, in the chair.

The Secretary read the minutes of the last meeting, which were confirmed.

The following gentleman was proposed as a resident member of the Society:—Joseph George Turner, F.R.C.S., L.R.C.P., L.D.S. Eng., 12, George Street, Hanover Square, W.

The following gentlemen were elected members of the Society. As non-resident members:—E. Beltrani, M.D., 2, Rue Noailles, Marseille, France; A. J. Makepeace, L.D.S. Eng., Hertford Chambers, Hertford Street, Coventry; Rupert Wheatley, L.R.C.P. Lond., M.R.C.S., L.D.S. Eng., 4, Park Place, Torquay.

ELECTION OF NEW COUNCIL.

The ballot was then opened for the election of the new Council, and Messrs. Densham and Clarke were appointed scrutineers.

LIBRARIAN'S REPORT.

The LIBRARIAN (Mr. W. A. Maggs), announced that Messrs. Claudius Ash & Sons had kindly presented Dr. Frederic W. Hewitt's work on "The Administration of Nitrous Oxide and Oxygen for Dental Operations."

The Librarian next presented his Annual Report. He said the additions to the library by presentation and purchase had been published monthly, and that it was unnecessary to make further reference to them. The number of members and visitors who had made use of the library during the past year ending on May 31, had been forty-three and fifteen respectively, as compared with thirty-two members and forty-two visitors during the preceding year. The number of books borrowed—a privilege now solely enjoyed by members—during the year was fifty-seven, as compared with forty-four in the previous year. The library had been open for the convenience of members on Mondays and Fridays, from 6.45 p.m. to 8.45 p.m., as had been invariably noted

upon the cover of each number of the Transactions, and the sub-librarian had continued to be in attendance upon those evenings. The librarian stated there was need for more space, as many volumes had been added yearly, and he hoped it would be available in the new habitat, wherever that might be; and the space would be needed notwithstanding some thinning out of the books which might safely be done before removal.

The exchanges of *Transactions* had been slightly increased which he regarded as a favourable sign, by the following additions:—*The Transactions of the Clinical Society, The Transactions of the Manchester Odontological Society, and the Transactions of the West London Medical Journal*.

The complete list of periodicals and journals exchanged was as follows:—*Bristol Medico-Chirurgical Journal, British Dental Association Journal, British Journal of Dental Science, British Medical Journal, Clinical Society's Transactions, The Transactions of the Dental Hospital of London Student Society, Dental Record, Dominion Dental Journal, German Odontological Society, Guy's Hospital Gazette, Guy's Hospital Reports, International Dental Journal, Lancet, The Transactions of the Manchester Odontological Society, Medical Society of London Transactions, The Transactions of the National Dental Hospital Student Society, Proceedings of Royal Dublin Society, Proceedings of the Royal Institution of Great Britain, Royal Medical and Chirurgical Society Transactions, Royal Society of London Transactions, Smithsonian Institute Transactions, West London Medical Journal*.

The *Transactions* had been presented to the libraries of the Royal College of Physicians and Surgeons, and to the University of Berlin.

The Society had continued to subscribe for the *Dental Cosmos, Journal of Anatomy and Physiology, Journal of Pathology and Bacteriology*.

The following periodicals were sent gratuitously, and were gratefully acknowledged:—*Chicago Dental Review, Journal of the Pharmaceutical Society*.

He concluded the report by expressing a hope that the library would be more generally used for reference purposes and for the loan of books. He referred to the book on the library table in which recommendations by members could

be made, and he said he would be glad to receive any such suggestions.

TREASURER'S REPORT.

Mr. W. H. WOODRUFF (Treasurer):—submitted the Annual statement of Accounts, which showed that the annual subscriptions for the year amounted to £452 11s., the arrears paid up £42, Entrance fees £30 1s., Sales of Transactions £6 4s. 3d., bring the current receipts for the year up to £531 4s. 3d. On the other side there was rent £150, Fire assurance £3 7s. 3d., Expenses of meetings, microscopes, etc., £97 17s. 1d., Library expenses £20 9s., Museum expenses £38 15s. 6d., Transactions £136 9s. 2d., and general expenses £57 6s. 10d., making a total of £504 4s. 10d. The gross receipts for the year amounted to £531 4s. 3d., and the gross expenditure £504 4s. 10d., leaving a balance of £26 19s. 5d. The investment account stood as follows: By £2 15s. per cent. Consols £4,076 2s. 4d.; purchases during the year £200; and dividends £102 13s. 11d., the total standing at £4,378 16s. 3d.

CURATOR'S REPORT.

Mr. STORER BENNETT exhibited a lower canine tooth very much decayed with two very well marked roots, which had been presented to the Museum by Mr. C. A. Clarke. Mr. Clarke was under the impression that the specimens were more rare than they really were, although of course they were comparatively so. It had been pointed out by the President some years ago, that in many cases when the lower canines had two roots they stood outside the bite.

Mr. Storer Bennett also showed a very interesting specimen (kindly lent by Mr. David Hepburn) of a portion of an elephant's tusk which had been injured probably by a bullet many years before the death of the animal.

Mr. Storer Bennett in giving his annual report said that all the specimens that had been presented during the year had been shown at different times and described, and as in former years he had put them on the table that night so the members not present at the particular meetings in which the specimens were shown might still have an opportunity of examining them. He hoped that members would take a little more interest in the Museum in the future. Some members were indefatigable, and the Society was especially indebted to Mr. Morton Smale who, beyond others, during the past

two or three years, had presented a large number of very valuable specimens to the Museum. During the year he was sorry to say that but few people had made use of the Museum. Except on the evenings of the meetings, only seven members and fourteen visitors had visited the Museum, so small a number that perhaps it was hardly justifiable to keep the Museum open two nights a week and pay the sub-curator to attend.

Mr. SIDNEY SPOKES exhibited for the inspection of the members a home-made denture which was apparently made of a piece of sheet iron upon which three bone blocks had been rivetted with iron rivets. The history of the case was shortly as follows:—Last year an old man aged 78 was admitted into the Chelsea Infirmary, where he died about ten days afterwards. Shortly after he was admitted he complained of rather severe toothache, and on the nurse looking into his mouth she saw the plate. It was loose enough to wobble about, and after some little labour the plate was dislodged from the old man's mouth. He said it had been there for thirty-two years, and that he had made it himself when he was an engineer in the Portsmouth Dockyard. The three bone blocks were arranged more or less at right angles to one another, and the second one was grooved where the old gentleman used his pipe. Curiously enough there did not seem to have been that disintegration of the bone blocks which one was accustomed to find. Mr. Spokes was indebted to Dr. Stephen Moore for the loan of the specimen and was sorry he could not present the original to the Museum, but he had great pleasure in offering a plaster representation prepared by his colleague, Mr. Rose.

The PRESIDENT thought it was a most extraordinary example of the tolerance of the human frame for foreign bodies.

The President announced that the Scrutineers reported that the nominations of the Council had been ratified by the members of the Society, and the new Council as suggested by the old Council had been unanimously approved.

DISCUSSION.

Mr. STORER BENNETT said it would be very unfair that the paper should go undiscussed, but at the same time everybody would admit that it was very difficult, if not impossible, adequately to enter into a discussion of such an elaborate and so exceedingly profound a paper at such short notice. He congratulated Dr. Grevers on the beautiful series of photographs he had shown, and also congratulated him upon living

in a city where they had such a magnificent collection of skulls as they had in Amsterdam. At first sight the method described would appear to be a very complete way of describing the various differences in the arrangement of the teeth. Whether it was likely to become general or not, it was only possible to say after the paper had been studied carefully and quietly. He was afraid the members would find it a little difficult to assimilate all the new names brought forward that evening.

Mr. TOMES said he did not like to let the paper of Dr. Grevers pass entirely without a word and yet he was still more unwilling to seem in any way to throw cold water upon his very complete classification. Dr. Grevers would forgive him for saying that the value of the classification depended entirely upon the value of the facts to be classified. It was of very little use to invent a number of descriptive terms which should designate correlated conditions unless those conditions were the things chiefly worth tabulating and describing. It seemed to him that a classification like the one brought forward would stand or fall not by its descriptiveness, not by whether it would designate in intelligible language certain conditions, but by those conditions being found to be the most important of those correlated with them. He did not mean to say that they should not have a means of briefly describing a purely accidental thing, but if many of the conditions described proved to be accidental and to be correlated with other facts of greater importance, then he did not think that the introduction of fresh terms was desirable. As a teacher he did not like fresh terms. The advocates in America of the tri-tubercular theory of the genesis of teeth and the Kineto-genesis, and all the various other sorts of words they had invented, had become a nuisance. Some of their terms had obtained currency while it was still doubtful whether the facts that those terms intended to embody were true. It was very doubtful whether they did express facts or whether they expressed theories which might be very transient. It seemed to him that Dr. Grevers in his investigations would do a great service if he could show with what those abnormalities were correlated whether they were accidental or part of a chain of events. If a terminology like that which Dr. Iszalai and Dr. Grevers had elaborated enabled him in his work to briefly describe things in a word instead of describing them at length, it would be so far very useful, but whether it would attain general currency appeared to him to

depend on the nature of the facts which it endeavoured to describe, and which at present he thought they did not know.

Dr. WALLACE thought the paper was a very interesting one. It appeared to him that in many of the dental terms that were used there was a confusion brought in by using words that were used in comparative anatomy in different senses altogether. The system suggested by Dr. Grevers seemed to avoid that difficulty, and therefore he thought there was considerable value in the system. It was based on facts. It was merely a nomenclature that gave as briefly as possible a representation of the facts. He thought it would be very advisable to consider the subject seriously, and that great benefit would be derived from adopting some such system as that which had been put before them so ably.

Mr. W. A. MAGGS said that from what he could understand of the paper the nomenclature seemed very good, and anything which would enable one to understand such complex conditions by a single technical word was certainly an advantage. If he might offer a criticism it would be to say that he should like to see eliminated from the nomenclature all those conditions which might be looked upon as pathological. The description of the normal occlusion of teeth was that most needed in such a classification, and not of those bites which appeared to be abnormal. Dr. Grevers might say that they were all pathological, but what he meant was that those states which had occurred during life, due to pathological conditions, should be ignored, and only the normal occlusion of the teeth included. For instance, in Mr. Tomes' book on dental surgery there was figured a prognathic jaw, with lower front teeth protruding, due to some cicatricial tissue following a severe burn in a young subject, but he supposed Dr. Grevers would hardly put that under his classification of epharmosis with prognathism.

Dr. GREVERS, in reply, thanked the members heartily for the kind reception they had given his paper. In reply to Mr. Tomes he said that happily, or unhappily, he lived in a very small country where a two hours' journey by train would take him into a different country, where a different language was spoken. In Holland they spoke different languages, and so far there was no trouble for them to read foreign books; but in England and the United States it was different. In English books and German books the various forms were described with peculiar names. For instance, he did not think anybody would understand what "Griezenmund" meant. It might be a mouth without teeth, such as was

found in old people, or it might also mean a mouth where teeth stood inverted and gave that peculiar expression. It might also be that "Griezenmund" might be produced by a projecting jaw, which he would call epharmosis or di-epharmosis. He fully agreed with Mr. Tomes that new words should not be coined. Dentists certainly suffered from bad nomenclature, but it was doubtful whether they were worse off than others were as in medicine. In medicine, he thought, there were a great number of names which were not correct, and it was the duty of each one of them to try and get a correct nomenclature. If he found in a collection of a thousand skulls ten cases with exceedingly projecting lower jaws, or found what might be called pathologically an open bite, he thought he was entitled to take notice of them, and even if they were pathological, to put them in the system and classify them.

On the motion of the President a vote of thanks was accorded to Dr. Grevers for his most interesting paper.

The President then referred to the severe loss sustained by Mr. J. H. Mummery in the death of his wife, and proposed that a letter of condolence should be sent to Mr. Mummery by the Society. This was unanimously agreed to.

The President then read his Valedictory Address, which is published on page 872.

Mr. DAVID HEPBURN, in proposing a vote of thanks to the President, said he was particularly glad that that duty had fallen upon him, because he had known Mr. Robert Woodhouse throughout the whole of his professional career, and the name he bore was an honoured one in the profession. At the very outset of dental reform in England the name of Woodhouse was associated with it, and as far as he could see it was not at all likely to die out for many generations yet to come. As a recent President of the Society he determined he would attend every meeting during the past session, but on one or two occasions through illness he was unable to do so. He mentioned that because he felt it was very gratifying to a President and to the members of the Society to see the past Presidents present at the meetings. If the old Presidents knew how much pleasure and gratification they gave to young members of the Society by coming to the meetings they would attend more frequently than they did. Mr. Woodhouse had mentioned that he had been absent for a short time, and from what he knew of Mr. Woodhouse he felt sure that nothing but a serious condition—which now pily had passed away—would have compelled him to

remain away from the meetings. He conscientiously fulfilled every duty that fell to his lot, and he had presided over the meetings of the Society and of the Council with all the tact, ability, and geniality which was expected of him when he was elected to the post. They thanked him for that and for his address and wished him long life and prosperity, and trusted that when he vacated the Chair his interest in the Society would not cease but that they would see him frequently amongst them in the years to come.

Mr. BADCOCK seconded the motion, which was carried with acclamation.

The PRESIDENT, in reply, said he agreed with Mr. Hepburn that it was not right after a man has passed the chair to pass away from the Society altogether. He thought the old Presidents should attend the meetings and enter into the discussions to the end of their professional days, and he felt himself that having been in the Presidential chair of the Odontological Society left a vast responsibility and was only one of the educational steps in his forward progress. The post of President was one that had given him great pleasure to enter upon, and he was painfully conscious of his shortcomings in the matter ; but, at the same time, it did not in any way detract from the pleasure it had given him to hear the members so kindly express their views and appreciation of the way in which he had endeavoured to do his duty.

Mr. W. HERN said the members all knew that unless the superior officers were aided and abetted by the junior officers the machine did not work well. It was so in the case of the Odontological Society. However able had been the conduct of the affairs by the President—and it had been admirable—the way in which the junior officers had done their duty was deserving of the thanks of the members. He asked them to join in a hearty vote of thanks to them for the excellent way in which they had assisted in the past session.

This was carried unanimously.

Mr. CLAYTON WOODHOUSE, in the name of his colleagues and the officers of the Society and his own name, briefly thanked the members for their vote.

The Session then terminated.

Dental News.

ANOTHER DEATH UNDER CHLOROFORM.

Mr. F. Llewelyn Jones, deputy coroner for Flintshire, held an inquest at Rhyl on the body of Mary Jane Kendrick, of Cerrigyllwydion Arms, Llanynys, near Denbigh, who met her death at Rhyl on Friday, under circumstances which have created much local sensation.

The first witness called was Catherine Davies, Cerrigyllwydion Arms, Llanynys, a great aunt of the deceased, who gave formal evidence of identification. The deceased was 29 years of age, and had lived with her from childhood. She accompanied her to Rhyl on Friday to see the dentist, and accompanied her to Mr. Keating's surgery, arriving there at about 12.30. She went with her to the operating room, where she was to have the whole of her teeth extracted. It had been previously arranged at Denbigh that chloroform should be administered. She was in the room when chloroform was administered, and remained in the room until she could stand it no longer, and she was removed to another room.

Frederick Jenks, L.D.S., said he was an assistant with Mr. Keating, surgeon-dentist, Rhyl. Deceased consulted him about twelve months ago with the view of having her teeth extracted, and he advised, if she wished to have them extracted painlessly, that chloroform should be administered. At the time she did not seem inclined to undergo the operation. On Wednesday she consulted him again, when he noticed that the condition of the mouth was very much worse than when she first consulted him. He pressed her to have them extracted, and made an appointment with her to come to Rhyl for that purpose on Friday. In accordance with the appointment the deceased came to the operating room on Friday, and he sent for Dr. Goodwin, who examined the patient preparatory to administering the drug. She appeared to take the chloroform very well. At the proper time he was advised by the doctor to commence operating. He commenced operating about 15 minutes after the chloroform was administered. He had extracted three teeth when the doctor stopped him, as he considered there was something wrong with the patient. He found that the breathing had

ceased, and he proceeded in the usual way to restore her. They gave her up in about twenty minutes after they had first noticed that something had gone wrong. He had had considerable experience as an operator in chloroform cases, and he knew of no other anæsthetic efficacious for such an operation, as it would occupy about twenty minutes. Gas would not be suitable owing to the number of teeth that had to be extracted, because one dose of gas would only last about a minute and a half.

Dr. Wycliffe Goodwin, M.B., C.M., said his surgery was next door to that of Mr. Keating. About twenty minutes to one on Saturday Mr. Jenks came into his consulting room and told him he had a patient requiring an anæsthetic, as she had to have a large number of teeth extracted. He informed him that his own doctor had told him that she was in a fit condition to undergo the anæsthetic. He went to Mr. Keatings and saw the patient. He first examined the mouth and found it was in a diseased condition, and it required the teeth to be taken out. She said she was willing to take an anæsthetic, and as it was a case in which gas was useless he suggested chloroform. He examined her in the usual way, and in his opinion she was a fit subject to undergo the operation. He then proceeded to administer chloroform with a mask and she took it without hesitation or trouble. Just before the operation itself she struggled slightly as was usual in cases of the sort. When she was completely under the influence of chloroform, and after the lapse of about a quarter of an hour, he told Mr. Jenks that she was ready for the extraction, and he proceeded to extract the teeth. After he had taken out three teeth he noticed that deceased became blue in the face and her breathing ceased. At that point they lifted her from the chair on to the floor. They used the prescribed remedies in a case of this sort, but without avail. To all intents and purposes she was dead three or four minutes after she was put on the floor. It was quite a usual thing to administer chloroform in cases of dental surgery which occupied some time, and chloroform was as safe as any other anæsthetic. There was nothing in the condition of the patient to suggest any danger whatever. She was apparently a strong woman. Death was probably due in this case to failure of the heart's action.

The Coroner, in summing up, said he did not think from the evidence there was any blame whatever attached to either the operator or the doctor. There was always a certain risk

in cases where anæsthetics were applied, and unfortunately this case was one of those where that risk had had fatal results.

The jury returned a verdict of "Death from misadventure," and expressed the unanimous opinion that no blame was attached to the medical man who administered the anæsthetic. They also expressed their deep sympathy with the family of the deceased in their bereavement.

SINGULAR DEATH FROM CHLOROFORM AT YARDLEY.

Mr. A. H. Hebbert held an inquest at the Yardley Arms Hotel, on the body of Norris Wilmott Kenyon, aged 17, who lived with his mother, a widow, at Aston Hill Cottage, Yardley, and who died from chloroform he had taken to alleviate the pain of toothache, to which he was a victim.

Annie Kenyon, 45, Edgware-road, London, said the deceased was her brother, her husband taking her name for the purpose of their business. Her brother was the last who saw him at eight o'clock on Thursday night. He looked very well, having just had a holiday, from which he returned on Wednesday. He suffered from neuralgia, which came on after he had gone to bed. She had found chloroform in his drawer, and asked him if he kept it about in those quantities. He said "Yes." She told him that it was very careless, and that people who used chloroform sometimes had accidents. He replied that it was all right. He knew all about it, and used it for toothache. Chloroform was sometimes used in the factory, and her brother would have occasion to go to Southalls—from whom the chloroform was obtained—to order acids, &c., for the business. She had no reason to think that he would commit suicide. She spoke to her mother about his having chloroform, and the mother told her that when she had taken some away, he replied that it was no use doing that, as he could get quarts if he wanted. He would always have his own way. He used to suffer from neuralgia after a long ride. Another brother of hers, aged about twenty-four, shot himself about ten years ago, about ten miles from Brighton.

Mrs. Pepperell, housekeeper at the house of deceased's mother, said deceased had for long been in the habit of taking chloroform for neuralgia.

Herbert Hollich Kenyon, managing director of a funeral company, stated he was staying at Aston Hill Cottage. He went to deceased's bedroom a little after eight o'clock. His brother-in-law was lying in bed in quite a natural position. Witness saw by the appearance of deceased's face that something serious had happened. He felt his heart, and found he was quite dead, although the body was just warm. A handkerchief was over the nose and mouth. Deceased had told him that chloroform was a pleasant thing to take. He drank it in small quantities, and witness had warned him as to the danger. There was no reason why the deceased should commit suicide. Witness and deceased chloroformed a litter of kittens a fortnight ago.

The evidence of Dr. Pugh showed that death was due to the inhalation of chloroform, although it was quite possible that the actual cause of death was suffocation by vomited matter in the mouth rather than poisoning by chloroform. The excessive rigidity of the body indicated that the amount of chloroform taken was not very large.

The jury unanimously returned a verdict of "Death from misadventure," and offered their deepest sympathy with the relations.

DEATH UNDER CHLOROFORM.

An inquest was held by Dr. H. R. Oswald at St. Pancras on the body of Griffith Evans, aged 17. Dr. W. Griffith, Mornington-road, N.W., cousin of the deceased, said the latter consulted him on the preceding Wednesday, explaining that he had suffered from abscesses in the mouth. His face was very much swollen. The witness found that practically all his back teeth were decayed, and these were causing the abscesses. The witness accordingly took him to the London Temperance Hospital, of the staff of which he (the witness) was a member. Having examined the deceased's heart Mr. Myler, the anæsthetist, administered chloroform to the young man, and as he lay on the operating table the witness removed half a dozen stumps. Suddenly the deceased turned livid, the administration of chloroform was stopped, and everything

possible was done with a view of reviving him. He died, however, from syncope whilst still under the influence of the anæsthetic.

The jury returned a verdict of "Death by misadventure."

A STEP IN THE RIGHT DIRECTION.

At the meeting of the Odontographic Society of Chicago, held on May 10, 1897, the following resolution was offered by Dr. Frank H. Zinn, and unanimously carried :

Whereas, the Dental Colleges and State Dental Boards of the United States have been charged by Dental Societies of Europe with methods which are not only degrading to American Dentistry, but result in a positive injury to the people, and are especially humiliating to skilful American Dentists practising abroad ;

It is charged, and truly so, that foreigners unable to speak and understand the English language, and in many instances possessing limited or no knowledge of Dentistry, have been admitted to advanced classes of our colleges and permitted to graduate ;

Moreover, that our State Boards have also examined such candidates through interpreters, and after receiving their certificates, these foreigners have returned to Europe and announced themselves as American Dentists.

Resolved : It is the sense of the Odontographic Society, of Chicago, that all candidates for admission to our colleges be examined in the English language ; also that our State Dental Boards conduct their examinations in English.

WASHING TEETH IN ST. JAMES'S PARK.

At Bow-street, Thomas Wright, a gentleman, residing at Grosvenor-road, appeared before Mr. Lushington to a summons charging him with an offence against the bye-laws of St. James's Park.—Frederick Barrett, a keeper at St. James's Park, stated that at half-past five p.m. on the 22nd ult. he saw the prisoner take from his mouth a set of artificial teeth, which he washed in a drinking fountain near Queen Anne's Gate. Witness inspected the fountain immediately afterwards, and found offensive matter had come from the teeth.—Mr. Wilson said his client was an old gentleman of indepen-

dent means. He was advised by his doctor to rinse his mouth during the hot weather in preference to drinking cold water. On the afternoon referred to by the keeper his artificial teeth hurt him, and he took them out to wash them in the waste water in the basin of the fountain. The drinking water was not contaminated in any way. The offensive matter referred to by the keeper consisted of stones and leaves for which the defendant was not responsible. Defendant did not know he was acting against the regulations, and had since written an apology.—Mr. Lushington said he did not suppose there was an intentional offence, but if defendant had washed his teeth in the lake it would have been an infringement of the bye-laws. Defendant would be fined 5s. and 2s. costs.

SAD DEATH OF A DENTAL PUPIL.

An inquest was held at Grindale by Mr. Luke White, coroner, on the body of Hector Kennedy, a dentist, pupil with Mr. Underwood, 26, Wimpole-street, London.—Mr. J. T. Grey stated that deceased was 26 years of age. They rode over to Bridlington, by way of Thwing. In the evening they were returning by way of Grindale, arriving at that village a little after seven o'clock. Going down the hill entering the village, witness was in front, and when partly down he heard deceased ringing his bell. Witness pulled aside, and deceased passed him at a rapid rate, having apparently lost control of his machine. In turning the corner at the bottom his pedal or handle-bar seemed to strike the wall, and he appeared to fall backward. When witness got to him he was unconscious, and was bleeding from the mouth and ears. Assistance was at hand, and he was carried into a farmhouse, but death ensued almost immediately.—Dr. Brett, who was called in, said that he found that deceased had been dead some time before he arrived. There were no marks on the body, except that the right hand was fearfully cut. This was consonant with the theory that the handle-bar had struck the wall. In his opinion death was the result of fracture of the base of the skull.—The Coroner, in summing up, said that doubtless it was a pure accident, but cyclists ought to exercise more care in descending hills, particularly when they were not well acquainted with the roads.—A verdict of "Accidental death" was returned.—Deceased was a native of Sydney, New South Wales, and had been about two years in England. His parents reside in Sydney.

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

CHLOROFORM ANÆSTHESIA FOR TOOTH EXTRACTION.

To the Editor of the "British Journal of Dental Science."

Sir,—The recent death from Chloroform during an operation for the extraction of teeth, in addition to others, needs an expression of opinion not only from the Dental profession but more particularly from our leading anæsthetists. I have frequently maintained, whilst we have such comparatively safe anæsthetics, as Nitrous Oxide Gas, Gas and Oxygen, or Gas and Ether, it is absolutely wrong to administer such an uncertain anæsthetic as Chloroform for Dental operations. Chloroform should always be given in the recumbent or semi-recumbent position, and this is obviously a somewhat awkward one for a Dentist to operate in, more particularly for lower teeth, and should he be operating on the upper teeth, and a root shoots out of the forceps, there is the danger of it slipping into the throat.

I maintain the proper administration of Gas and Ether gives quite sufficient time for any capable Dental Surgeon to extract the whole 32 teeth. But this wholesale operation is seldom or ever required, or if so, should be done, in my opinion, in at least two sittings. I have spoken to several provincial men on the subject of Chloroform anæsthesia, and the majority say this is the only anæsthetic they can depend on when there are a number of teeth to be extracted. They complain of the Medical men not understanding the proper administration of Nitrous Oxide Gas, and in many cases it is a mere farce having a doctor in at all, as the Dental Surgeon, in the majority of cases, administers the Gas himself and extracts the teeth, whilst the doctor *feels the pulse*.

I have enclosed you a cutting from the *Liverpool Evening Express*, upon which I wish to express one or two comments. The operator "commenced operating about 15 minutes after the Chloroform was administered." Is not this a somewhat lengthy time to get a patient under the influence? "He had had considerable experience as an operator in Chloroform cases, and he knew of no other anæsthetic efficacious for such an operation, as it would occupy *about twenty minutes*." Surely this must be a printer's error. The administrator states, "It was quite a usual thing to administer Chloroform in cases of dental surgery which occupied some time, and Chloroform was as safe as any other anæsthetic." I refrain from making any comments on these two quotations, my only object in writing this letter being to open up the question as to whether Chloroform should be given for tooth extraction or not. In my humble opinion I say emphatically No.

I am sure the opinions of our leading Anæsthetists on the subject will be accepted with thanks by the Dental profession.

Yours faithfully,

CHAS. W. GLASSINGTON.

* * We publish Mr. Glassington's letter with great pleasure, because he only emphasizes the point which we have contended for so long in these pages, namely, that Chloroform should never be used for dental operations. We are fully under the impression that our leading anaesthetists are also of this opinion, but any remarks they or other of our readers wish to make in this case, or upon the use of Chloroform in dental practice will be gladly received.—(Editor, B. J. D. S.)

To the Editor of the "British Journal of Dental Science."

Sir,—In the issue of *Morning Leader*, dated the 20th August, there appears an account of an interview with a lady dentist. I have always been given to understand that one of the rules of the Medical Council was that no advertising was allowed; and that any member of the dental or medical profession so doing could be struck off the Register. Perhaps the article referred to is not considered advertising by the lady: but more than one L.D.S. has been written to by reporters asking for an interview, and it speaks well for the honour and *esprit de corps* of the profession that the request, so far as I have heard, is invariably refused. You will find that the report states that this lady is "the only one who has taken her diploma from London,"—a manifest inaccuracy—and that "in time they may examine women even in London," which consummation, let us hope, is far off. There are many other points in the article which will well bear examination. With thanks in anticipation for inserting this letter from

A DENTAL STUDENT.

[Our Correspondent is mistaken with regard to the action of the General Medical Council on the question of advertising. We do not know of any case in which a name has been removed from the Register for that offence alone.—Ed. B. J. D. S.]

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
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British Journal of Dental Science

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VOL. XL.

STATE OF DENTAL EDUCATION IN NEW ZEALAND.

By Mr. FRANK ARMSTRONG.

Although in New Zealand the first Dentists' Act was passed close on twenty years ago, no arrangements have yet been made to give students even a chance of any hospital training whatever. The law enacts that a person desirous of becoming a dentist shall be apprenticed to a registered dentist for at least three years, and then pass an examination before a Dental Board in Dental Anatomy, Physiology, Pathology, Medicine and Mechanics. One written examination paper covers the whole range of subjects; time allowed for answering it, two hours; questions given, five or six; one oral examination of about one quarter of an hour, and perhaps a morning's practical work in a busy practitioner's workshop, comprise the tests thought necessary to entitle any one to practise dentistry in New Zealand. Absolutely no Preliminary Examination in General Education is required. A student does no hospital work before sitting for his examination. He may never have put in even a plaster filling! For three years he gets, according to the style of practice of the man to whom he is apprenticed, a more or less satisfactory training in Mechanical Dentistry, and an opportunity of seeing his master do some operative work. Occasionally he may get a few minor operations to do in the mouth.

The Dentists' Act enacted that all men practising dentistry should register themselves before a certain date. Of

course everyone who had taken out a tooth registered, and according to the Act were eligible to take pupils. The examination was put under the charge of the New Zealand University Senate, which appointed a Board of four medical men and one dentist. For years pupils were examined by that Board. The coast line of New Zealand is over 800 miles in length. The Senate could have established examining boards in each of the four large towns, Dunedin, Christchurch, Wellington, and Auckland. It was decided to have one Board in Dunedin. The disadvantage of having four boards was that almost of necessity there would be four standards of examination for dentists.

Looking forward to the time when arrangements could be made for training students, it was evident that the Medical School would have to be utilized. The New Zealand Medical School is in Dunedin. Efforts were made to get an Amendment Act passed, insisting on a Preliminary Examination. After some years the Act was amended, but in the wrong direction. One provision of the first Act was that pupils would not be received for examination who had been more than one year out of their apprenticeship. This looked like a hardship to a person who was unlucky enough to be unable to get through the examination within the year. As a matter of fact the idea was to prevent a pupil, may be, following some other occupation after having served his three years, and then cramming up his bookwork, scraping through the examination and starting practice as a duly qualified dentist, although it might have been years since he had done any good practical work at his profession. A pupil could easily have got his apprenticeship extended from year to year, the clause only insisting on the examination being passed within a year of the expiration of his pupilage. Now a man may serve his three years, go to sea, gum digging, rabbiting, etc., and whenever he is sufficiently crammed to pass the examination, give notice to the board and have another try.

A considerable sum is made by some dentists in New Zealand by taking pupils, and men in the north thought that if students were compelled to take classes in Dunedin, the Dunedin dentists would receive all the pupils. After many efforts the examination was removed from the auspices of the University Senate, and by an Amendment Act, Dentists' Boards were appointed by the Governor in Council. Four boards were then appointed each consisting of three Medical men and three Dentists. In one town the board was chosen by vote of the dentists and their pupils, a proceeding surely remarkable, for students to elect their own examiners! Of course the arrangement never worked. Out of the four boards appointed (in Auckland, Wellington, Christchurch, and Dunedin), three never held an examination. The new board got together in Dunedin, kept together, and, as of old, students travel as much as 800 miles to pass their examination. The only thing accomplished by the Amendment Act was the removal of the examination from University control, surely a retrograde step. Thus although for close on twenty years New Zealand has had the benefit of a Dentists' Act, the present system of educating dentists is a disgrace to any civilized community.

BRITISH TEETH ON THE DOWN GRADE.

By CHARLES FOX, L.D.S.

CAUSE 4.—ABUSE OF DRUGS.

Probing once more into the conditions that operate in this year of grace 1897, and placing them alongside earlier periods in the century, we find an important though perhaps secondary cause for dental deterioration, in the enormous increase

of medicine-taking, by all sorts and conditions of citizens. True it is that the physicians with deepest insight into the laws of health rely less and less on drugs and more and more on a sanitary environment for their patients, with strict rules as to diet, clothing, bathing and exercise. But the deeply-rooted prejudice in favour of a "bottle of medicine" obliges many a doctor to supplement his really important advice by a needless prescription. And while the drugs are poured down the long-suffering alimentary canal with regularity and touching faith, the more weighty matters of fresh air or exercise will be treated as mere fads of the doctor. One of George Eliott's most humorous character sketches is that of the old lady in "The Mill on the Floss," who used to shew her friends many shelves of empty medicine bottles. There they stood in long array, fragrant witness to her much-to-be pitied state, and yet all the time a cherished monument of pride to the invalid. But this abundant dosing was a luxury of the well-to-do in those days, whereas from a thousand dispensaries and ten thousand chemists' shops in these prosperous days, flows out an ever widening stream of physic to combat the stress of civilized life. Only the other day a parish doctor found one hardened pauper in his care could boast of having consumed one thousand gallons of medicine all paid for by a tender-hearted nation.

I can remember noticing the dispenser in a busy provincial hospital very frequently filling bottles straight from a large jar. I asked to be enlightened as to the special virtues of this popular mixture. "Oh! that's the faith, hope and charity blend," responded the chemist with a knowing wink, plenty to taste and smell, nothing to harm a child; and yet, believe me, effects half the cures in the out-patient department." Empty handed, they go away sullen and disappointed, but with a bottle of brown sugar, peppermint, and aqua pura they march home light of heart, for "hope springs eternal in the human breast."

Were the prescriptions all of this innocuous order, we as dentists need make no moan. But when diluted sulphuric acid and iron, for instance, as direct destructors, and mercury, arsenic, iodide of potassium, and bromide of potassium as indirect agents for dental mischief, enter so constantly into medical prescriptions, we may rightly call for pause. Of course the lesser must give place to the greater, and in cases of virulent or serious disease the teeth be of secondary importance. All we wish to urge is that they should more often be placed in their rightful perspective, and the servants of a lifetime not be injured while dealing with the temporary symptom of a passing ailment. This criticism, be it understood, is made "with bated breath and whispering humbleness," but an experience like the following is of too frequent occurrence in every dental office to prevent our duty being to speak a word in season to our medical brethren. A young woman in service had been a terrible sufferer from neuralgia for more than six months. She attended a dispensary and religiously swallowed twenty-five bottles of physic containing amongst other things iron and strychnia. Not once was her mouth examined or any instructions given to visit a dentist. Finally when the toothache became sufficiently localised she came to have her teeth seen to. A wrench with a pair of forceps cured the neuralgia at once, but the effects of iron and strychnia on the other teeth and general nerve power will never be set right.

But beyond the field of professional prescription lies the vast territory of quack medicine, as boomed in a thousand journals and magazines. The British people polish off 200 millions of pills per annum, as our patent medicine stamp duties bear record, and what boundless oceans of safe cures, balms, oils, elixirs of life, and soothing syrups are greedily imbibed by the credulous population of these islands? No more terrible instance of our national power, no, not the

Jubilee Naval Review itself, can be named than the fact that we sell to foreigners £800,000 worth of patent medicines every year.

Harping back on the one item of iron, it is this in its numerous forms that is the sheet anchor in cases of anæmia. Now anæmia is frequently caused by an indoor life, with white bread and tea diet; and the kind-hearted mistress who sends her maid to the dispensary, would be acting a wiser part if she insisted on the pale-faced house-maid spending an hour or two in the sunshine every day. The way in which delicate children, for they are often nothing more, are kept in underground kitchens, or closely confined to the house, day after day, with a glimpse of twilight liberty once or twice a week, is a scandal to our civilization. No class needs the dentist's help more than the domestic servant, and in these poor white slaves, with their wrecked mouths, we see the evils of an unwise diet, bad air and strong medicines in their most pronounced form. If iron must be taken, let the patient use it in the form of a bicycle, for that prescription has cured thousands of stubborn cases of anæmia, since fashion blessed the merry wheel. In one big house of my acquaintance where servants succeed one another at frequent intervals, they all rapidly develop dental trouble. From healthy country lasses they degenerate into pallid languid creatures, with fetid breath and lack lustre eyes. The young ladies a storey or two above, revel in sunshine and healthful exercise, and are financially valueless to the dentist. The good lady imagines she is doing her duty by her dependants, for they are not overworked, and the medical and dental bills cost her a pretty penny, but let her try for herself and children one month in the kitchen, with one evening and Sunday afternoon out for weeks, and doubtless they would also peak and pine.

There is a medicine habit as well as opium or alcohol habit, and as the wisdom of our people grows, and the firmness of

of our physicians, there will be less recourse made on every trivial pretext to drugs. A young doctor remarked to me when discussing this question, and he was an honoured man in his day, "I firmly believe that England without a chemist's shop or dispensary, or any medicine stronger than dandelion and stewed figs would be a healthier nation than it is to-day. Whenever, I find my patients educated to the comparative importance of obeying common sense hygienic orders—I bar internal medicines altogether. With the rest I am depending more and more on mild vegetable drugs, linked with repeated advice as to the things to do and the things to be left undone. Strong mineral drugs or powerful nerve tonics effect their cures at too great a permanent cost."

If a person eats half a hundredweight too much sugar every year, Aunt Hannah's Syrup will not re-establish their dental integrity. The child who is robbed of milk and stuffed with cornflour cannot be coaxed into stalwart youth by the aid of Mr. Gainfast's Soothing Syrup. Pale-faced girls in factory or suburban kitchen on meagre allowance of sun and breeze will not permanently blossom into blushing beauty on Dr. Bland's Pills for Blue People, nor will old men with kidneys ruined by years of excessive drinking renew their youth on a course of Save Cure.

TOOTHACHE DROPS.—Equal parts of carbolic acid crystallized, camphor, chloral hydrate, menthol and glycerine. Pulverize separately the camphor and chloral, mix, and when liquefied add the menthol, previously friturated, and lastly the carbolic acid and glycerine liquefied together by heat. In packing the tooth cavity with this, none of the fluid should be allowed to ooze over the gums.—*Western Druggist.*

British Journal of Dental Science.

LONDON, OCTOBER 15, 1897.

DENTAL OFFICERS AND BOARDS OF GUARDIANS.

In our number of Sept. 15 we published a Statement of Conditions recommended to Boards of Guardians with regard to the appointment of Dental Officers. For many years we have drawn attention to what we considered to be the proper duties of the Dental Officer, and also to the attitude which Boards of Guardians ought to assume with regard to the teeth of the children under their care. It is therefore a matter of congratulation to see these duties recognised and defined in an official communication. Our contention has always been that the appointment of Dental Officers should be compulsory on Boards of Guardians, and not optional as at present. But this, we suppose, is too much to expect in the present state of public opinion. Public opinion must always precede any legislative enactment, and the public is not yet sufficiently educated with respect to the importance of its teeth. The public, too, is extremely sensitive as regards its pocket. If Dental Officers gave their services gratuitously, the public would raise no objection to the appointment of as many as were required. But when it means an addition of a fraction to the rates, it is a different matter, and the ratepayer enquires why pauper children should be as well treated as his own. Then there is the opposition of those who, although they have arrived at the dignity of Guardians, have never used a toothbrush or visited a dentist, and cannot see the utility of either. Ignorance and self-interest must be combated in no slight measure before the rules which have been drawn up can be put widely into force.

The duties are not those of extraction merely, as has been, and still is, too often the case. The officer to do his work thoroughly must give a certain number of hours—depending upon the number of children under his care—every week. He must inspect the teeth of every new arrival, and re-examine every child at stated intervals. He must be regular and punctual in his attendance, and keep a record of every operation performed. This record must be available for inspection at any time by the Guardians, or the Inspector of the Local Government Board. He must be a registered dentist, or if he is medically qualified, he must also possess an L.D.S. Diploma. On the other hand it is clearly pointed out to the Guardians that every facility should be provided their officer for the efficient discharge of his duties. A properly equipped surgery with dental chair and engine, and other suitable apparatus should be provided, as also filling materials and material for regulating appliances.

It is needless to remark that an officer performing the aforesaid duties would require a salary, which if perhaps not commensurate with the value of the services rendered, yet should be sufficient in amount to attract a good man, and at the same time, by making him a salaried servant, ensure his work being open to investigation and criticism. As too often happens at present, the honorarium is a merely nominal sum, and the work—chiefly extraction—is performed at odd times, and in a perfunctory manner. It is recommended that the officer be paid either by an inclusive salary or partly by fixed salary and partly by fees on a fixed scale for specified operations. Extractions are recommended to be paid for in the fixed salary in all cases, and this is a laudable provision, because the temptation to extract a tooth which ought to be saved should be eliminated, while the necessary extractions in regulation cases would be included in the fee for the whole case. That the Dental Surgeons already appointed to schools are doing a much-appreciated work is confirmed by the testimony of the Captain of the *Exmouth* training ship, who has now no complaints of toothache among his boys, and who passes them into the Navy with

greater ease than before. Those schools which have employed dental surgeons are fully satisfied with the results, and the dentists are re-elected annually. We hope the time is not far distant when dental appointments may be instituted not only under the Local Government Board, but also under the Admiralty and War Office on the same lines as medical appointments. Meanwhile as straws show which way the wind blows, this circular to Boards of Guardians shows that the welfare of the teeth of the poor children of the State is beginning to be more recognised, and we welcome it as a small instalment towards the beneficent hygienic legislation of the future. As regards any opposition from the medical officers, our experience is that they acknowledge they cannot attend to the children's teeth as they ought to be attended to, and they welcome the appointment of a dental *confrère*.

HOW LONG WILL NITROUS OXIDE GAS KEEP?—A writer in the *Dental Cosmos* relates that nineteen years ago he purchased a cylinder of gas from S. S. White, and the valve would not work. He therefore telegraphed their representative to send him another, which he used. He tried the old cylinder a short time ago, and succeeded in getting it open. He administered the gas to a lady patient for whom he extracted seven teeth. Everything worked satisfactorily. It is interesting to know that the gas suffered no deterioration, and seemed to be unacted upon itself, and had no action on the bottle.

EXTRACTING DIFFICULT ROOTS.—In the same Journal Dr. A. J. Butler has found the following method of great value in extracting roots that were decayed or broken off above the margin of the gum. With a B size How twist-drill in the engine, he drills into the pulp-canal as far as he can with safety ; then taps with the same size How screw-tap. Then he screws in a bright-metal post, following it with the chuck until it touches the root, or approaches as

nearly as possible. He then takes hold of the chuck with his forceps and extracts with as straight a pull as possible. By this method all laceration of the gums and injury to the alveolar process is avoided.

EXAMINATION IN ENGLISH.—Several of the best American Universities are increasing the stringency of their Preliminary examinations. The course of English reading recommended is good and comprehensive, but in the list of works we notice Southey's "Vicar of Wakefield." To be robbed of the credit of his master-piece must be very galling to the gentle shade of Oliver Goldsmith. A rule that "No candidate will be accepted in English whose work is notably defective in spelling, punctuation, idiom or division into paragraphs," is badly wanted on this side of the water also.

HOW TO PREPARE A CAVITY IN AN ARTIFICIAL TOOTH.—Dr. Whedon's plan is to take a small size corundum wheel and grind a cavity the size and shape you want it, then take a small discarded fissure drill and harden as hard as possible, and sharpen to a blade point by grinding on two sides, moisten the cavity with campho-phenique, and by frequently sharpening the drill on an oil stone you can drill retaining pits any size and depth you wish in a very few minutes without any danger of fracturing the tooth.

DENTAL ASSOCIATION OF NEW SOUTH WALES.—The Annual meeting of the Dental Association of New South Wales has been held in Sydney, Dr. Burne occupying the chair. The President's report stated that the Dental Bill was now before the Lower House of Parliament, having passed the Council in July last year, and it was hoped that it would be passed into law this session. Congratulations were given to chemists on the Pharmacy Bill having been passed into law. The balance-sheet showed a balance to

credit of £109 11s. 5d. On the motion of the President, the report was adopted. The election of office bearers for the ensuing year resulted in the old officers being re-elected: President, Dr. Burne; vice-presidents, Messrs. H. Paterson and S. Chaim; hon. treasurer, Dr. O. Davis; hon. secretary, Mr. H. Taylor; committee, Messrs. C. Marshall, F. J. Holway, H. S. Newton, E. A. Gabriel, and J. S. Darton; and auditors, Messrs. B. Corbett and C. Chandler.

New South Wales has had a good fight for its Dental Bill, and we soon hope to see it become law.

A FRAUDULENT DENTAL CANVASSER.—At Dundee, Philip Carroll, canvasser, William Street, Scouringburn, was accused of fraudulently obtaining 5s. from a girl named Jessie Anderson, living in Mains Road. He pleaded guilty. It was stated that Carroll visited the girl Anderson at her father's house, and said he was a representative from a dental establishment in Dundee and empowered to take orders. Arrangements were made that the girl should call and get her teeth operated upon, and before leaving Carroll prevailed upon her to give him 5s. as "preliminary expenses." The Magistrate sentenced Carroll to fourteen days imprisonment. The ingenuity of rascals of this sort is astonishing. We do not know how many former victims had parted with "preliminary fees," but we may depend that many had.

THE CHILDREN'S TEETH.—Mr. W. B. Tolputt, L.D.S., has forwarded to the Eccleshall Board of Guardians, a detailed statement of the dental work done by him during the past year in connection with the children's teeth. He stated that he had extracted 193 teeth, and stopped 145. He also stated that there was a marked improvement in the teeth of the children since they had been provided with tooth brushes, and that this, strange to say, was much more noticeable in the boys than in the girls. The Chairman remarked that Mr. Tolputt had devoted a large amount of

time to his work, and that he had performed such to the entire satisfaction of the Board. We should like to see many more such statements published.

THE ANTRUM AND VOCAL RESONANCE.—Dr. Sudduth declares that the air contained in these cavities vibrates in harmony with the tones produced by the vocal cords. That this vibration is most appreciable when the tones produced are full of melody, as in certain kinds of church music and negro melodies. That it is more prominent in singing than in speaking, unless a special declamatory effect is attempted. That there is a type of individual to which the successful vocalist and orator belongs and which is indicated, among other things, by a considerable but harmonious development of the maxillary sinuses. That variation in the size and shape of the resonant cavities when present, undoubtedly affects their value as resonators.

THE HINDU LYING-IN CHAMBER.—According to the *Indian Medical Record*, quoted by the *Canadian Practitioner*, the mortality in child-bed among Hindu women is notoriously high, a circumstance which is no doubt largely due to the very early age at which they usually become mothers. A still more potent cause, is, however, to be found in the shocking and apparently deliberate barbarity with which they are treated during the puerperium. The lying-in chamber of a Hindu family is ordinarily a little, damp, ill-ventilated hut or room in some remote corner of the court yard or compound. In this the expectant mother is placed and there she remains for eleven to thirty-one days, during which, according to Brahminical law, she is looked upon as unclean. There is only one small inlet in this apartment, and the door is carefully closed to exclude those evil spirits, light and air. In order, probably, to purify the unfortunate woman by heat, wood fires are kept burning in the room both night and day. The smoke has to find its

way to the outer air as best it can through any chinks there may happen to be in the roof or walls, which are usually made of bamboo with a thatching of mats or straw. With the view of more effectually exorcising the unclean spirit, a powder composed of peppercorns or ginger is given to the patient during the first few days ; this preparation is administered either in the form of a paste or dissolved in boiling water as a tisane. It is not surprising to learn that the result of this elaborately perverse therapeutics is that something like 40 per cent. of the women subjected to it die of puerperal fever and tetanus within the first fortnight after delivery.

A PAUPER AND HIS ARTIFICIAL TEETH.—At a meeting of the Aston Board of Guardians, the report of the House visiting Committee contained an application from one of the inmates asking the Guardians to give instructions for the repair of his artificial teeth. Mr. Price said that he entered the item on the report so that the Board might deal with it. Mr. S. Doggett moved that the application be not entertained. He was of opinion that if the Guardians acceded to the application it would lead to numerous others of a similar character. (Hear, hear). Mr. C. C. Cooke considered it would be an unnecessary hardship to refuse the application. The man was of a respectable character, and had in his better days purchased the teeth which he now asked to be repaired. Mr. Hunt seconded Mr. Doggett's proposition, which was carried by eight votes to five. The difficulty in this as in many other cases is in drawing a distinction between the deserving poor and the wilfully lazy. We think, however, that the Guardians might have acted more liberally.

POISONING BY CHLORATE OF POTASH.—Deaths from this drug are not very uncommon. A case is cited from Austria in which a boy of sixteen, suffering from a sore throat had been given a gargle containing nothing but chlorate of

potash. At the inquest no chlorate of potash *per se* was found in the dead body, the drug having apparently undergone transformation before death occurred. The pathological changes in the muscular tissue left no doubt in the mind of the pathologist, as to the cause of death. In the comments that have followed, medical men are strongly advised to give careful instructions about its use, and that it should not be used indiscriminately as gargles or lotions, nor should the powder be given to patients to make gargles according to oral prescriptions, as was the case in a previous instance.

DENTAL IRREGULARITIES IN ANCIENT SKULLS.—We are accustomed to consider that prehistoric skulls were everything that they should be in the way of dental armature, but Dr. Dorsay in the *Dental Cosmos* has been examining a number of ancient Peruvian skulls and finds the following anomalies:—Upper lateral incisors atrophied; third molars suppressed. Lower left lateral incisor suppressed. Upper lateral incisors weakly developed. Third molars suppressed. Root of third molar of small size. Upper third molar with four roots. Upper third molars suppressed. Supernumerary pair of incisors. Upper lateral incisors suppressed.

OBTUNDING SENSITIVE DENTINE.—The following different plans are all recommended by different writers:—Chloroform applied on a pellet of cotton after placing the rubber dam; sulphuric acid in combination with glycerine; a pledget of cotton well saturated with pure carbolic acid sealed into the cavity and left for from two to four days. R. Morphia sulph. grain $\frac{1}{4}$, Atrophia sulph. grain $\frac{1}{160}$. M. Sig. Half an hour before operating taken internally. Campho-phenique confined under a temporary filling for a few days. Drop a crystal of carbolic acid into the cavity. Absorb moisture by applying absorbent cotton; then lay on a piece of cotton saturated with cocain and allow it to remain for a minute or

two. Moisten a pledget of cotton with alcohol, take up on it crystals argenti nitras and place in contact with the dentine for two days.

CHLOROFORM.—Chisholm states that during the twenty-eight years from the time of the introduction of chloroform there were only two deaths by its use in the Royal Infirmary at Edinburgh. During the last ten years of that period he estimates that there were 36,500 cases of chloroform anæsthesia, with only one death. Elser, of Strasburg, had used chloroform 16,500 times without a single death. During the Crimean war chloroform was given 30,000 times, with but two recorded deaths. When it is remembered that in many of these cases it was given to men torn and mangled by shot and shell, and too often by unskilful assistants, we must hold this agent in high esteem. At the same time we must reiterate that its use in dental surgery should be strongly deprecated.

PAINLESS OPERATIONS.—Dr. North, of Iowa, in the *Microcosm*, tells us how he does painless operations. First. Deciduous tooth, cavity sensitive. Wipe the cavity dry, then bathe with creosote and again dry the cavity; remove decayed substance with a sharp excavator, cutting from the centre toward the border of the cavity, with a lifting instead of a downward movement, and the operation can be performed without pain. Second. Permanent tooth, cavity sensitive, patient in his teens. Apply the rubber-dam, dry the cavity with hot air, and bathe with creosote. In a few seconds wipe this out, moisten with alcohol, and again dry with hot air; then remove all foreign substance with a sharp excavator or bur, cutting toward the border of the cavity, with a lifting instead of a pressure movement. After all foreign matter is removed, if the cavity is too sensitive to cut and prepare for a gold filling; use cement for the filling, keeping it well protected from the secretions of the mouth for some time, and this filling will be very durable; then in a few months it can be painlessly refilled with gold.

ARMY DENTISTS.—Murray Acklin, Assistant Hospital Steward, U.S.A., wants to know why there are no dental surgeons in the Army. He says in a letter to the *Cosmos*, "The government gives its soldiers splendid quarters, good clothing, and furnishes food excellent in quality and quantity, but does not furnish teeth to chew it with, should those they have give way. An applicant for enlistment must have good, sound teeth, especially molars, or he is invariably rejected ; even the front teeth being broken down by decay is a good cause for rejection. Our sick reports very often show cases of old soldiers diagnosed as "indigestion," "dyspepsia," etc., which the condition of the teeth probably explained, and many days' service have been lost to the government by its soldiers, directly due to decayed teeth. We have veterinary surgeons in our army to care for horses : why not dental surgeons to care for teeth ? The position of veterinary surgeon is a good one, and the government derives much benefit from it. Now, the soldier is a government man, and the horse is a government horse ; would not the preservation of the teeth of the former be as beneficial to the government as the general carcass of the latter ? Why not, then, have dental surgeons in the army, and make the position equally as good as that of a first-class veterinary surgeon, with a distinctive uniform, if a uniform is required at all ; give them quarters in or near the hospital, with an office room in their quarters, where every man in the service of the government could have his teeth properly attended to. The government would certainly not be the loser by it." Far from being a loser, we are convinced that the State would be a gainer by it. But Government Offices are bound hand and foot with red tape, and it will take a long time to bring about. But come it will, sooner or later.

"The lesson which I venture to think should be drawn is that chloroform should rarely (save in cases of parturition) be employed as an anæsthetic."

DR. JENNINGS in the *British Medical Journal*.

Abstracts of British & Foreign Journals.

CHLOROFORM IN DENTAL PRACTICE.

A death under chloroform occurred at Rhyl on August 13th under circumstances which confirm our often expressed opinion that chloroform is not a desirable or safe anæsthetic for dental practice. The patient in this case was a woman, aged twenty-nine years, in good health, and described as being strong and free from fear of the anæsthetic. She had very bad teeth, and a local dentist advised the extraction of twenty-seven of them. A medical man was called upon to give an anæsthetic, and he advised the use of chloroform. In his evidence he said that he had examined the patient and judged she was in a fit state to take the anæsthetic. He considered nitrous oxide gas would be insufficient for so extensive a clearance, and added: "It was quite a usual thing to administer chloroform in cases of dental surgery which occupied some time, *and chloroform was as safe as any other anæsthetic.*" It is to be presumed that this statement, besides its general application, was meant in particular to apply to dental surgery, and it is in this connexion we cannot but feel so sweeping a pronouncement is hardly in consonance with either the facts of this particular case or with the experience of the last fifty years. To refer for one moment in detail to the case. The patient was placed in a chair, and after the chloroform had been given from a mask for fifteen minutes the medical man signed to the dentist to commence the extractions. This was done, and after three teeth were removed the operator was requested to stop, as the patient had become "blue in the face" and "the breathing had stopped." It is further stated that just before the operation the patient struggled slightly, "as was usual in cases of the sort." They lifted the patient out of the chair, "but she was dead three or four minutes after she was placed on the floor." It would seem, therefore, that when the patient struggled she was not fully under chloroform, and this was after about thirteen or fourteen minutes inhalation, then she at once became fully under the influence of the anæsthetic and the operation was proceeded with. Probably during that struggle the overdose was inhaled, and the interval before the chloroform actually stopped respiration by its action upon the medullary centres

was taken by the dentist in drawing three teeth. It is obvious that the actual manipulation of the tooth extraction interferes both with respiration and the proper watching of the chest movements. Many medical men on such occasions assist their dental colleagues by holding the patient's head, and so have their attention withdrawn from the function of respiration and the condition of the patient. These are manifest objections to using chloroform, and a still further one is that it has been shown that the sitting position is one which increases the patient's risk under that anæsthetic. But the most cogent adverse reason to the use of chloroform in such cases is the extremely high mortality which reference to the report of the *Lancet* Commission appointed to investigate the Subject of the Administration of Chloroform and other Anæsthetics from a Clinical Standpoint, in 1893, shows only too plainly. We cannot agree with any statement that chloroform in dental operations is as safe as ether or the A.C.E. mixture. It is a very great question whether it is wise to attempt to remove twenty-seven teeth at one sitting; but if cases do arise in which such an heroic proceeding is considered justifiable, then certainly ether or a mixture should be used rather than chloroform. The only way in which the last-named anæsthetic can be at all safely employed in dental surgery is where the patient is placed under the same conditions as if he or she were about to undergo a major surgical operation. This cannot be done in the ordinary routine work of the dental surgery. The patient must be prepared by abstention from heavy food, must have all clothing absolutely removed and replaced by a dressing-gown, and must be placed in the recumbent position. We cannot but feel that for so comparatively trifling a matter as having teeth out no one's life should be jeopardised by the use of chloroform unless the fullest precautions are taken and the risk looked clearly in the face. Many country dentists may point to a large experience of chloroform without mishaps, but their fortunate cases cannot counter-balance or lessen the horror of a fatality such as that at Rhyl. We cannot speak too emphatically. This case is almost identical with one which happened only recently and which was recorded in our columns.

Lancet.

AMERICAN DEGREES.

We have on more than one occasion mentioned the danger of employing the services of any professional man who makes a point of advertising an American degree. The growing practice, particularly among a certain class of schoolmasters and dental surgeons, of placing after their names letters that they have simply bought from a United States University led Mr. J. W. Sidebottom, M.P., to question Mr. Balfour on the subject, and the Government has been asked if any steps can be taken to "stop this alien interference with the duties and prerogatives of our authorised Universities." In this country the possession of an educational degree indicates that its owner has passed through a University course, and that his name is borne on the books of his college; and, however small its actual money worth may be, it stamps the man as possessing certain ability. And medical degrees are regarded in the same light; they are diplomas of capability, and for all practical purposes public guarantees. But even on the showing of Mr. F. W. Harkiss, the Chancellor of the National University at Chicago, "in the United States every year hundreds of honorary degrees are given as sops to rich or successful men—bribes to purchase influence or awards for services irrespective of education." In addition to this wholesale bestowal, degrees in these States are conferred on any applicant—who may be living on another continent—on the receipt of certain fees, which are capable of reduction if two degrees are taken at the same time. Not only is it an injustice to the schoolmasters and others who have obtained their Bachelorhoods or Masterships of Arts at an English University by several years' steady application and keeping of terms that men whose capabilities are more than questionable should be allowed to sport the letters M.A. and LL.D., as in the case pointed out by one of our Correspondents to-day, but it is a crying injustice to the general public, who may very easily be misled by the glamour of the letters that have been bought in America. The diplomas of these American degrees apparently compensate in appearance for the farcical nature of the "educational honours" which are to be obtained by any one who is willing to pay for them. And as the ignorant and simple are easily deluded by an imposing row of letters, the number of these degrees is rapidly increasing. Seeing the heavy expense to which parents are already

put by their children's education, it is unfair to them, to the Universities, and to all University men to permit the use of any foreign degree which the possessor cannot prove to have been awarded for knowledge and not in return for money. America certainly stands alone in this wholesale distribution of honours, which when used in the United Kingdom are as worthless as they are misleading.

Morning Post.

CLEFT PALATE.

Dr. EDWARD LAW at a meeting of the Laryngological Society, showed two cases of Cleft Palate, with enlarged tonsils, inferior turbinates, and excessive quantity of adenoid growths. The patients—a girl 15, and a boy 13—were sister and brother, and were both operated upon during infancy for hare-lip. There was no complaint made of regurgitation, difficulty in swallowing, or deafness; and the only symptom causing discomfort was that the power of distinct articulate speech was most seriously impaired in both instances. A broad cleft was seen in the middle line passing through the hard and soft palates. The tonsils were enlarged, long, the inferior turbinates were greatly hypertrophied, and the defective nasal septa were seen passing backwards to the posterior pharyngeal wall above, and, as it were, through the adenoid masses.

The cases were shown in order to invite the opinion of members in reference to operative treatment. Such congenital cases differ widely from acquired ones, and there is no normal function to be restored, the patient having never acquired the faculty of perfect articulation. These considerations account for the patient being so often terribly disappointed with the result of surgical interference. Is it possible that the gap will be closed in either of these cases by means of an operation? If so, will the result be more than a surgical success, simply closing the cleft by means of a tense and rigid bridge, which in no way improves the imperfect speech (the only relief desired by the patient), and probably complicating the employment of suitable obturators and artificial vela. If no operation be attempted to close the clefts, is it desirable to remove the tonsils and adenoids before handing the patients over to the dental surgeons?—*Medical Press.*

THE DANGERS OF ARTIFICIAL RESPIRATION.

The most obvious thing to do when the patient fails to take air into his lungs while he is under the influence of an anæsthetic is to adopt one or another form of artificial respiration. In most cases the treatment is a correct one, and leads to a successful recovery of the patient. It must not, however, be assumed that in every case in which the breathing stops artificial respiration is the first act to be performed or is it a proceeding free from danger. In more than one instance resort to this method has led to fracture of the ribs owing to some excited assistant pressing too vigorously upon degenerate bones. There must in every case be a cogent reason for trying to force air into the chest and a clear knowledge that at the same time no impediment exists in the upper air passages to its free entrance and exit. There have been numerous cases in which foreign bodies—balls of worsted, artificial teeth, and masses of undigested food—have become engaged in the air passages, and have only been discovered after futile efforts at artificial respiration had been abandoned, as they had failed in their object. There can be no doubt that in cases where it is certain that vomit has entered the lungs the first thing to do is to perform tracheotomy and draw out with some pump all the fluid which can be got from the air-passages.

The Lancet.

MANAGEMENT OF PULP-CANALS.

By S. ESCHELMAN, M.D., D.D.S., Buffalo, N.Y.

In destroying the living pulp, two methods present themselves: the immediate and the slow. The immediate method has given me the most satisfaction, and is performed by the use of ethyl chloride and carbolic acid. In using the chloride of ethyl tubes, I prefer those with the curved nozzle, as by their use the spray can be directed on to the exposed pulp, whether situated on the mesial or distal surface of the tooth. Before using the ethyl chlorid, it is necessary to protect the tissues surrounding the teeth by rubber-dam or napkins from

the intense cold it produces. After the tissues are well protected, I direct the spray on the exposed pulp until it is so anæsthetized that the patient manifests no pain from the extreme cold of the spray. Then a nerve-broach, on which a few strands of cotton have been wound very loosely, so as to carry as much carbolic acid and occupy as little space as possible, with one quick thrust is pushed to the apex of the canal, so as to amputate the pulp at the apical foramen. It is surprising with what little pain the pulp can be removed in this manner from the ten anterior teeth. I prefer carbolic acid on account of its anæsthetic properties; it also arrests the hæmorrhage quickly.

In using the second or slow method, arsenious acid, made into a paste with acetate of morphine and cocain, appears to act as well as any combination I have used. In its method of application, with regard to safety and ease of applying, I prefer to place a small particle of the paste on the slab, then with a spatula I work into a small pellet of cotton. Then make a cap or cup of air-chamber metal and smear its concavity with a solution of Canada balsam or sandarac varnish, so as to have the pellet of arsenic adhere to the cap, and we have an application that can be easily managed.

I suppose we all have had cases where the arsenical application oozed out of the cavity and produced more or less destruction of soft tissue. Especially is this liable to happen in approximal cavities, where the decay has extended below the gum margin. In these cases it is best, before applying the arsenical pellet and cap, to seal up the cervical margin of the cavity with a pellet of cotton saturated with sandarac varnish. This with care can be done so that the cotton lies against the gum and leaves a pocket around the exposed pulp. Then the cap containing the application is placed in position over the exposure, and the cavity sealed without danger of displacement.

Other cases in which the metal cap and arsenical pellets are extremely satisfactory are shallow cavities, especially those at the cervical margin of the bicuspid. The cap and pellet is placed in position, then a pledget of cotton saturated with sandarac varnish placed over the cap, after which a ligature of floss silk is passed around the tooth and over the application, and securely tied to prevent its displacement. By passing the ligature twice around the tooth, the first loop will hold the application in place while the knot is being tied.

Again, in making the arsenical application great care should be taken to avoid pressure, as it has been my observa-

tion that in most of the cases where pain follows the application, it was due largely to the pressure of the dressing. By making the metallic cap of sufficient size to form a bridge over the exposure, pressure is avoided. Since I have used these caps, I find it the exception to have pain following the arsenical application. While there is no particular harm in leaving the application for several days or longer, I prefer to see the patient in twenty-four hours and remove the application, as I desire to have a remedy that is capable of doing harm removed as soon as possible. The cases are extremely rare in which the pulps are not dead or so nearly dead that if the arsenical application is removed and replaced by an antiseptic dressing, and left for a few days, nature will do the rest.

If it is desirable to remove the pulp after the first application and some tenderness remains, it can generally be removed with little pain by using cocain or carbolic acid, or, what I prefer, cocain in sufficient carbolic acid to dissolve it. In treating the second condition, or those cases in which pulp-chamber and root-canals are in a putrescent state, it is well to begin by first opening the pulp-chamber freely, so as to gain access to all the root canals. After this has been done and the loose débris washed away with warm water, the canals are next to be cleansed of all dead pulp or other septic matter. For this purpose I know of no medicament equal to hydrogen dioxide. For convenience sake I fill a hypodermic syringe with the dioxide, using a curved needle with a blunt end, with which I drop sufficient of the dioxide into the cavity to fill the pulp-chamber. Then with a Donaldson broach I gradually work the liquid into the canals to the apex, and as the dioxide comes in contact with the septic matter it is converted into froth, which is to be washed out and renewed by fresh liquid. This process is to be continued until the bubbling ceases and the dioxide remains clear. It is surprising how quickly and efficiently the dioxide acts on the putrescent matter. From its first introduction, when it forms large bubbles, and as oxidation of the septic matter gradually grows less, minute bubbles keep coming to the surface and after a while cease, until it leaves the liquid clear, what a transformation has taken place, from a foul-smelling pulp-chamber to one that is bleached and has no disagreeable odour.

The next stage of the operation is to carefully dry the canals with cotton twisted on a smooth broach, which will dry the canal sufficiently for practical purposes; but if you wish

to be more particular, cleanse the canal with absolute alcohol, then evaporate the alcohol with a hot-air syringe or a root-canal drier, when the pulp-chamber and root-canal will be in a splendid condition for the permanent antiseptic dressing.

Cosmos.

UNNECESSARY SACRIFICE OF DENTAL PULPS.

By Dr. W. A. SIDDALL.

There is nothing in dentistry which requires more skill and thought and good judgment than to properly place anchorage for a filling without danger to the pulp. To be able to tell where the pulp is in a tooth and to so place anchorage that the filling will not be injurious to the life of the pulp, requires the greatest judgment.

There are so many things to be considered—the age of the patient, the density of the tooth, any peculiar shape of the tooth or cavity. We must look out for any unusual location of the pulp or unusual length of the horns of the pulp.

I believe that there are a large number of pulps sacrificed unnecessarily by a lack of care and judgment in the preparation of cavities.

There is no question but that the use of hot air in connection with a certain medicament for sensitive dentine, a few years ago, resulted in the death of a great many pulps, and we should be careful to know what effect any new treatment for the same purpose may have on the pulp.

No doubt many pulps will be sacrificed by the use of cocaine and cataphoresis.

It is often a difficult thing to diagnose an exposed or nearly exposed pulp, and especially is this so when the dentine is insensible to pain. I would not underestimate the value of a method whereby the dentine can be desensitized, but would urge that unusual care be exercised in its use.

Whether cataphoresis will prove to be detrimental to the welfare of the pulp remains to be seen, but certainly unless great care is used many pulps will be destroyed by its use.

Ohio Dental Journal.

THE CLINIC.

By E. P. BEADLES, D.D.S., Danville, Va.

Ocular demonstration is the best teacher. When a child sees a thing he will remember it easier than if only told about it. Men are simply grown-up children. A desire to learn something new is the foundation upon which all of our dental associations rest. The clinic has been the favourite method of imparting knowledge. Many men attend the annual meeting for the clinic alone. They can read the papers and discussions in the journals; but cannot see the operations. This being true, the very best methods for conducting clinics should be devised. It is evident that the plans which have been in use by most of our societies have served their day. With a small number present, each man may be able to see what is going on; with a large number present nobody gets any satisfaction, the operator is crowded and worried, often failing to do himself justice.

The idea should be, not to have so many clinics, not so many operators; but good ones. Some men can teach, others cannot. There is a secret in being able to impart knowledge, to explain a thing so that the hearer may go home and perform the thing for himself. If those who have our clinics in charge for this year will select a few good men of known experience as operators and with ability to tell what they know, and will carry out the following rules, success will be theirs.

1. Have provided only one chair, and have that placed upon a raised platform near the president's seat.
2. Have only one clinic in progress at one time.
3. Let the Society be in regular session during the clinic, with the president and other officers in their places.
4. Let each operator furnish beforehand to the manager of the clinic a list of whatever he needs to carry out his work.
5. Have placed on the platform a good blackboard.

Now with the members in their places the clinician is introduced and his intended operation announced. With the patient in the chair and with free use of the blackboard, he explains fully what he intends to do. At a certain time those who wish to examine the case are allowed to come up, one or two at a time; this over, the operator proceeds with his

work. If it will consume some time another subject may be taken up by the association, business transacted or a paper read, with the understanding that the operator can have the attention of the members whenever he desires it.

By the plan here outlined no one who has been invited to clinic will be neglected. He will have the ear of the entire association, he will feel stimulated to do his best. Our prominent men will feel it worth their while to accept invitations to clinic, everything will be done orderly and "satisfaction guaranteed."

Cosmos.

ARISTO-PARAFFIN WAX FOR ROOT-CANALS.

By HARRY B. HICKMAN, D.D.S., Philadelphia, Pa.

Mix the aristol and paraffin by application of slight heat and by means of a spatula till the mass assumes a dirty straw colour. This mixture will not deteriorate with age, and can be kept in glass or in a pasteboard box. Paraffin wax as found in commerce is a more or less impure hydrocarbon, but it will not volatilize unless raised to a high temperature.

After the dam has been applied and the canal has been sterilized and prepared as usual, it should be desiccated thoroughly by use of chloroform or alcohol with hot-air syringe, or by use of a root-canal drier. When this has been accomplished, roll a cone of aristo-paraffin and place in the canal, and with a heated root-drier or other pointed instrument touch the wax, when it will fill the canal by capillary attraction.

When the canal is filled, to all appearances, the material can be forced up through the apical foramen by means of a round-head burnisher and a pledget of cotton or bibulous paper, or by twisting cotton around the sharp point of a plugger, when by the slight irritation evinced by the patient for the instant it will be known that the canal is filled. Experiments with this preparation on extracted teeth demonstrate through what surprisingly minute foramina it can be forced.

The advantage of using aristo-paraffin, where the foramen is large, is that, if it is forced through the foramen, it will

not produce sufficient irritation to cause or continue an abscess, but be absorbed by the tissues, which advantage can hardly be claimed, righteously, for any other filling of the same value in other respects. When the canal is thus filled the bottom of the cavity should be covered with cement, and the filling completed as conditions indicate.

Between sixty and seventy cases of abscessed roots have been treated and filled in this manner, from one to three years' standing, and there has been but a single case of recurrence of apical tumour, which was caused by an impacted third molar.

Eight months ago, in examining a lady's mouth, the lower second molar, which was filled with amalgam, was found to be abscessed. According to her story there had been a fistula on her gum below the tooth for nine years.

In cleansing the root there appeared through the fistulous opening a substance resembling what the pathologists term blue pus, which made me hesitate about trying to save the tooth. Instead of extracting, the filling was removed and the canals treated in the usual manner with carbolic acid, creasote, oil of cinnamon, etc., but the fistula remained closed for a few days only. Finally it was decided to fill the root-canals and treat the abscess through the fistula. In forcing aristo-paraffin through the distal canal, there appeared through the fistulous opening, on the point of wax, a particle of amalgam, which had been causing the whole trouble.

After filling the crown as much paraffin as possible was removed from the fistula, and in a few days it closed up. Since then there has been no recurrence of either pain or fistula.

Cosmos.

THE ADMINISTRATION OF SAFE ANÆSTHETICS.

By H. BELLAMY GARDNER, M.R.C.S., L.R.C.P.,
Assistant Anæsthetist to Charing Cross Hospital, Anæsthetist
to the Male Lock Hospital.

On page 352 in the *British Medical Journal* of August 7th, Mr. George Foy, of Dublin, takes exception to my statement on page 160 in a previous number (July 17th), that "practitioners in Ireland and the English provinces keep

writing about chloroform as if they had never heard of ether at all," and remarks, "We are all familiar with ether, its good and bad properties, and we will continue to select such anæsthetics as we consider suitable for the occasion, forming our opinion not from the London schools alone, but from the experience of our brethren in the different countries of the world."

I refer Mr. Foy to the communication of Dr. Charles O'Neill, of Belfast, in this Journal for June 12th, page 1466, in which there is a statement that "In using 'methylene' through a Junker's inhaler we have the safest anæsthetic at present known," and throughout the four columns of the article (which extols the use of chloroform and 'methylene') there is not one reference to ether except as a hypodermic injection in threatened collapse under those anæsthetics. In 1877 Dr. Ormsby and Professor Morgan, of Dublin, collected statistics on this subject which showed that there had been a mortality :

Under bichloride of methylene...	of 1 in 5,000 cases.
„ chloroform ...	...of 1 in 2,873 „
„ ether ...	...of 1 in 23,204 „

Nine deaths under "methylene" were recorded in the medical journals between 1869 and 1875, "with symptoms almost identical with those which characterise chloroform fatalities." Bichloride of methylene (whatever may be its primary formula) consists, after removal of the stopper of the bottle and momentary exposure to the air, of a mixture of chloroform and methyllic alcohol, and it is not, therefore, practicable to administer bichloride of methylene at all.

Continental and American statistics agree with those of Dr. Ormsby, of Dublin, in showing that ether is more than five times as safe as chloroform.

Dr. Julliard, of Geneva, put the mortality of

Chloroform at ...	1 in 3,258
Ether at ...	1 in 14,987

Dr. Gurlt, of Berlin, at the Congress of 1891 and 1892, showed from personal experience a mortality from :

Chloroform ...	1 death in 2,614
Ether ...	1 death in 8,431

M. Landau stated from his researches that the German statistics were :

Chloroform	...	...	1 in 3,111
Ether	...	...	1 in 14,640

and the English :

Chloroform	...	...	1 in 3,749
Ether	...	...	1 in 16,675

The result of adding all these together with Dr. Ormsby's gives the mortality of

Chloroform at	...	1 in 3,121 cases.
Ether	...	1 in 15,587 cases.

In the face of these facts from "the different countries of the world," which Mr. Foy justly says should constitute the basis for the formation of our opinion in the selection of an anæsthetic, it is not correct to state that methylene is safer than ether; nor can its choice be justified for routine administration when we find it is diluted chloroform and kills its victim in a similar manner to that drug.

I have the authority of the two senior London anæsthetists to whom I referred in my first letter for saying that "they use ether and gas and ether for almost the whole of their routine work." I am intimate with the opinions of the anæsthetists who lecture and administer the anæsthetics at most of our large general London hospitals; the majority of these hold an undoubted preference for ether. In one of the largest hospitals the use of chloroform has been forbidden to the resident officers except under special circumstances. At Charing Cross Hospital more than 70 per cent. of our cases have gas and ether or ether, and the occurrence of a fatality under its influence in London is a matter of extreme rarity.

Now let us turn to the *St. Bartholomew's Hospital Reports*, which Mr. Foy has brought forward in answer to my statement that those "London anæsthetists who have a lifetime of experience use ether in preference to chloroform." Mr. Foy has given an imperfect table of these statistics: the number of the chloroform administrations is accurate, but he has entirely omitted the gas and ether inhalations as if they were not ether cases at all. Now as the precedence of ether by a few inspirations of gas is the most skilled method of administering ether to a patient, the complete table of the *St. Bartholomew's Hospital* statistics of anæsthetics stands as follows :

Year	Chloroform		Gas and Ether and Ether	
	Cases	Deaths	Cases	Deaths
1884	1,244	—	1,720	—
1885	1,331	—	1,504	—
1886	1,425	1	1,676	—
1887	1,702	1	1,859	—
1888	1,711	1	1,352	—
1889	1,601	2	1,319	—
1890	1,860	1	1,113	1
1891	2,031	1	1,096	—
1892	1,887	1	897	—
1893	2,524	2	1,437	—
1894	2,350	2	1,682	—
1895	2,553	2	1,392	—
Total ...	22,219	14	17,067	1

By this we observe that chloroform has been administered at this particular institution more frequently than ether, but in nothing like the proportion which Mr. Foy would have us believe, neither did Mr. Foy in his table give us the resulting mortality of this practice, which has yielded 1 death in every 1,587 chloroform cases, and 1 death in 17,067 ether inhalations. It is indeed difficult to understand why the more dangerous drug is still used in Great Britain and Ireland when ether is at hand and affords so safe and wide a road for us to travel when compared to the narrow deadly path of chloroform narcosis.

British Medical Journal.

“HOW TO LET THE PUBLIC KNOW.”

By B. S. STACKHOUSE, L.D.S., Lachine, Que.

How shall we let the public know that the dentist who advertises that he “extracts teeth without pain,” “makes sets of teeth in two hours,” cures all with his “all cures,” and who gives the impression in the press that he can do for almost nothing what others cannot do for any price,—how

shall we let the public know that such a man is a knave? We find impostors in every place in commercial and professional life. To-day our markets are flooded with cutlery and surgical instruments of German make, stamped with the same names as English firms, spelled differently—wretched frauds, yet doing serious injury to legitimate business. In our profession the public is imposed upon by loud advertising crown and bridge workers, local and anæsthetic tooth tinkers, and two-hour-set men.

The public will go on believing and trusting impostors in spite of the exposed quacking of some of them. Anyone acquainted with the history of Montreal for the last twenty years can recall the appearance now and then of the loud advertising “experts,” as they like to call themselves, who play their little game until they get “played out,” and yet no matter how often the knaves come there will always be credulous people to welcome them. If a burnt child will not dread the fire, we can at least, in some way control both the fire and the child; but if people will entrust the care of their teeth to men whom ethical dentists know to be not only impostors, but ignorant, we must just let them do it. Surely an intelligent public ought to understand that no intelligent dentist would let quacks get ahead of him either in theory or practice, and that if any good thing comes into our profession, that those who are in the front of our educational interests would more likely be the first rather than the last to test it, and give it the proper place in practice. It may be that the good work the Dental College of the Province of Quebec is doing for the students will in some measure react upon the public. There is no *raison d’être* for the existence in an intelligent community of the brazen-faced quack, who knows his own ignorance so fully that he never appears in our dental societies or dare measure swords with educated confrères, but who knows, too, that the public being ignorant of what is best and most reliable in dentistry as in medical practice, is apt to believe as much in the advertising charlatan as in the most honest and skilful practitioner. I can only answer my own question, How shall we let the public know? by the statement that the public likes to be humbugged, that the public will be humbugged, that if we try very hard to expose humbug we will be put down ourselves as humbugs. I therefore propose to mind my own business and let the public take the consequences.

ARE WE LONGER-LIVED THAN OUR FATHERS?

The Lancet says, "The mean duration of life among males has increased under the influence of preventive medicine by four years during the past fifty years. The increase of longevity among females has been.....five years in the same period. Some are inclined to depreciate the value of this increase in the mean duration of life in England in recent years, because it is mainly due to the reduction of mortality in childhood. It is indeed true that after middle life the expectation of life has not increased, and has, indeed, slightly declined. The effect of this is, however, far more than counterbalanced by the largely increased proportion of persons who survive childhood and reach middle life. Thus, as has been pointed out, there has been a very considerable increase in the proportional number of years lived by succeeding generations between the most useful age period of from twenty to sixty years. This may clearly be claimed as one of the results of the labours of preventive medicine. It remains to be seen whether further sanitary progress will make it possible to entirely counteract the effect of the increasing intensity of competition and the struggle for existence and survival which undoubtedly are now depressing the expectation of life after middle age. If, therefore, longevity signifies mean duration of life, there can be no doubt about its increase in England in recent years. If, however, by longevity is meant the chance of middle-aged persons reaching extreme old age, English life tables do not supply so satisfactory an answer to our question."

PYORRHOEA ALVEOLARIS—WHAT DO WE REALLY KNOW OF IT?

By Dr. W. H. TRUEMAN.

There are, it is a satisfaction to know, a few points upon which there has been little if any controversy, and these may, perhaps, furnish us reliable data for future investigations.

1. It is a disease seldom appearing until the patient approaches middle life. While exceptions to this have been

frequently noted, they are, however, infrequent and exceptional, and have been so recognised.

2. It is not, at the outset, usually accompanied by any marked systemic derangement.

3. It usually begins insidiously, runs an uneven course, and is prone to relapse.

4. It always ceases, completely and permanently, when the teeth are lost.

I am strongly impressed that pyorrhea alveolaris is merely a germ-infection. It may be serious, involving a large territory, and incurable, or slight and easily controlled, just in proportion as the oral conditions favour or repress germ activity. How far the general health may affect these conditions we have, as yet, little reliable data. The pathology of stomatitis is suggestive upon this point. We may bear in mind that for the germ to become a pathological factor three things are necessary; (1) the germ; this, however, is omnipotent; (2) a dwelling-place; (3) congenial surroundings. In stomatitis the disturbed circulation, due to the primal lesion resulting in the swollen gum margins, furnishes over a widely extended territory abundant opportunity for germ colonies, and the surroundings seem particularly favourable to germ activity. Disordered digestion in the child and in the adult seems to produce in the oral cavity conditions especially favourable to germ-growth. In proof of this, the furred tongue, for ages recognised as a reliable and delicate indication of gastric disturbance, is now known to be due to the presence of germ life,—a form of germ-life that immediately disappears when the stomach resumes its normal condition.

In early life, while the gum-tissues firmly embrace the teeth and fully occupy the dental interspaces, there is little opportunity for any form of germ-life to obtain permanent foothold. Later, however, when normal changes materially alter this condition of affairs, when the saliva become more loaded with inorganic matter, when there is a more marked disposition to tartar deposits, when the gum tissues relax their firm embrace of the teeth and as a result debris-collecting spaces are formed along the gum-margins and between the teeth, when in addition to all this, as the natural result of normal wear and tear and the inevitable loss of tooth-substance, the gum and tooth-supporting tissues become more and more exposed to violence and accidents of various kinds during mastication, etc., we readily see how, in a thousand and one

ways, opportunities for gum-infection are vastly increased. All without the slightest assistance from any systemic disorders.

We may remember that of all germicides known to science none are so potent, so thoroughly reliable, or so universally accessible as are the natural secretions of a healthy human mouth. Were it otherwise, it would be utterly impossible to find a healthy individual among the many thousands who are compelled to daily breathe the germ-laden dust of a large city. It is only when the germ succeeds in quickly finding a little pouch in which to hide, secure from this, to it, destructive secretion, or when by mere chance it obtains foothold while the potency of this secretion is temporarily impaired, that it has the slightest chance to begin its destructive work. Once firmly settled, it begins to be thrive, and a colony once formed creates conditions that may successfully combat its untoward surroundings. Changes constantly taking place in the oral secretions—now favouring and now opposing—fully account for the ebb and flow that marks, in its earlier stages, this disorder. The ravages of the disease, never wholly obliterated after it has once been firmly established, are ever an open door inviting the frequently noted relapses, until the complete loss of the teeth destroys for ever its once favourite camping ground.

We thus see how fully the germ theory meets all of the few points upon which close observers for nearly two centuries are in perfect accord.

International Dental Journal.

SENSITIVE DENTINE.

By Dr. E. T. DARBY, Philadelphia.

I think sensitive dentine a normal condition. All real tissues with rich nervous supply are sensitive. The fibrils undoubtedly have an intimate relationship with the pulp, and any injury to the fibrils is conveyed to the pulp. Healthy dentine is sensitive, but not to the same extent as diseased dentine (decayed dentine).

I do not believe in the theory of inflammation in the dentine. We can not have inflammation without blood-vessels, and there are no blood-vessels in the dentine. The fibrils in the dentine are nerve fibrils, and are a prolongation of the odontoblastic cells on the surface of the pulp.

Hypersensitiveness of the dentine is dependent on the amount of acid present in the decayed structure. This hypersensitiveness may be diminished almost instantly by putting in the cavity of decay a little bicarbonate of soda before beginning to excavate.

Cavities along the labial and buccal surfaces are often more sensitive because they are bathed in an acid mucus from the gingivæ. It is always well to apply a little bicarbonate of soda before beginning to cut these, especially if the rubber dam be not first applied.

I do not think the nearness or distance from the pulp has anything to do with the excessive sensibility.

My treatment for sensitive dentine is the following: First, apply rubber dam. Then pack into cavity for a moment bicarbonate of soda. Then wipe the cavity with absolute alcohol, dry thoroughly with warm air (not hot air), then put into the cavity for a few moments equal parts carbolic acid and caustic potash, and dry the cavity again, and go ahead with sharp excavators. When I have done this I have very little complaint from patients. I do not think cutting from the pulp instead of toward it has anything to do with the promotion or abuse of pain in excavating. Somebody made an assertion years ago, and it has been handed along from one practitioner to another without question. There is no physiological reason why it should be true, and my experience and observation convinces me that there is nothing in it but theory.

If the dentist will take the time in each case to give preliminary treatment indicted, he will not be troubled much in his effort to excavate sensitive dentine. He may be obliged to renew the application if the decay be deep seated, but it is well worth the time spent.

Dental Review.

To the question, "Is sensitive dentine an abnormal condition?" the following answers are found in the *Review*—

Dr. Cravens, of Indianapolis	...	...	No.
Dr. Guildford, of Philadelphia	..	...	No.
Dr. Abbott, of New York	...	...	Yes.
Dr. Andrews, of Cambridge	...	...	Yes.
Dr. Barrett, of Buffalo	...	...	Yes.
Dr. Darby, of Philadelphia	...	...	No.

THE ETIOLOGY AND TREATMENT OF PYORRHŒA.

By Dr. J. W. WASSALL, Chicago.

The cause of pyorrhœa alveolaris is still involved in mystery. While there have been many theories advanced and the best thought of the profession has been given to the subject thus far nothing conclusive has been established. There seem to be advocated, first, that the cause of the disease is purely local; second, that it is constitutional, and third, that it is of local and constitutional origin combined.

The argument so often advanced that the disease must be purely local because local treatment will result in its disappearance would at first glance seem to be conclusive. But a closer examination of this claim shows its fallacy. For by the same reasoning eczema, the local manifestations of which are removed by topical treatment could be called a local affection when its constitutional origin is a well-known fact.

A more satisfactory cause to my mind is proposed by Drs. Pierce and Kirk, viz., the uric acid theory, but the value of their claims is still speculative. While I do not deny that their claim may be correct, I am not prepared to accept their proposition that the deposits of pyorrhœa alveolaris are equivalent or analogous to the calcareous deposits of the uric acid diathesis. Dr. Black has demonstrated by his analysis that uric acid may be present in all deposits upon the teeth, salivary or serumal, irrespective of the fact of the presence of pyorrhœa alveolaris. If the serumal deposits of pyorrhœa alveolaris were identical with the calcareous deposits in the joints of gouty or rheumatic subjects why is it that the deposits on roots of teeth never occur as loose nodules in the periodontal membrane? I wish to assert that I am unconvinced that pyorrhœa deposits originate *de novo* unless situated in pockets. The chemical analysis of any calculus taken from an individual of the uric acid diathesis—and the uric acid diathesis is very prevalent—would naturally reveal the presence of uric acid. Would you infer that stone in the bladder and its accompanying irritation was due to gout because analysis yielded uric acid crystals? I have brought before you these few objections to the uric acid theory not because I disbelieve in it entirely but in order to show that

the ground upon which its advocates stand is not yet assured.

The causative agency of the calculary deposits in pyorrhœa has always been a matter of doubt. While it is almost unquestioned that a pocket precedes the formation of a deposit, yet it is plain to every observer that the presence of serumal calculus aggravates all the symptoms and accelerates the progress of the disease. Salivary calculus is important as a predisposing cause of pyorrhœa alveolaris. in that it establishes a lesion of the gingivus, a condition favourable to the development of the disease.

I wish to suggest a constitutional disorder which seems in my judgment to bear an important relation to this affection. It is eczema. All observers seem to agree that the scrofulous tendency or dyscrasia is very favourable to the development of pyorrhœa alveolaris. Scrofulous persons are invariable subjects to the impairment of the integument or of the tegumentary appendages. It may take one form or another. In one family it will be early falling of the hair bulbs; in another, dryness of the cuticle. All such are tegumentary degenerates, and it is my experience that very few cases of pyorrhœa alveolaris come under my notice in which I cannot find some indication of eczema.

The infectious character of pyorrhœa alveolaris has been noticed by many observers. Dr. Black, in his article before referred to, states it as his belief that the bacteria which are found to abound in the discharge stand in an important causative relation to the disorder. So far as I can learn, no one species has been isolated which will give rise to the disease by inoculating the peridental membranes of the lower animals. There is here open a fruitful field for study and investigation. The disease is in all probability caused by a germ or its toxins, and it is only a question of time when the particular species will be demonstrated.

Treatment. The constitutional origin of pyorrhœa alveolaris is so much involved in mystery at this time that there is no basis for systemic treatment. So far as I am able to learn, there is also not even an empirical method of systemic treatment of any special value. We are therefore, driven to the other alternative and forced to rely on local treatment until such time as further investigation shall have revealed the truth to us.

For the same reason local treatment is carried on in the

dark, but we know that in this direction only can we obtain any really satisfactory remarks.

When a case presents it should be the first duty to make a thorough examination. The gingivus of each tooth should be carefully sounded for pockets and when one is found its location, depth and width should be accurately indicated on the diagnosis chart.

The treatment should consist first, of the removal of calculus; second, medication; third, the securing of rest and protection.

The location and removal of calculus is often one of the most complex and trying operations the dental practitioner is called upon to perform. There is nothing I can add to what has been said upon this question. Each must put forth his best skill and ingenuity to accomplish the end sought. It is perseverance, the educated digit and concentration of mind upon the cutting edge of the instrument which should mainly be depended upon.

Cocaine anæsthesia may be used in painful cases.

In some examinations of cementum of teeth affected with pyorrhœa alveolaris reported by Dr. George B. Clement at the World's Columbian Dental Congress he asserts that the superficial lacunæ and canaliculi become solidified by calcific deposit. It therefore becomes a matter of much importance after removing the serual calculus to also take away this layer of solidified cementum. Indeed it has seemed to me that success in obtaining adhesion of the new growth of pericementum to the cementum is entirely dependent upon the ability to present a freshly exposed surface or normal cementum to the new granulations.

All operations should be accompanied with a free use of a powerful stream of warm water from a small nozzled syringe.

Medication should consist at the first visit of, first disinfection to remove all traces of bacteria; second, of a vigorous escharotic to destroy pernicious tissue and to act as a alterative and establish a healthy action which is the proper surgical treatment for any ulcerative surface.

To secure rests cusps should be shortened with the corundum, and if there is any loosening some sort of a splint should be adjusted—metallic bands, pure silver or gold preferably, or waxed silk ligatures.

The mouth is such a favourable habitat for the myriads of pathogenic bacteria that it would be eminently desirable if it were possible to seal up the external openings of pyorrhœal

pockets. I have not as yet had any experience in such a procedure, but I believe it is feasible, and some effective way should be employed.

Subsequent treatment should be made with the utmost care not to break up any reparative processes which have begun. Failures are often occasioned by careless probing or uncalled for force in injecting medicaments at this stage. Search for deposits overlooked at the first treatment should not be made unless there is positive evidence of their presence by failure of the pockets to close. Disinfectants and stimulants at varying intervals of from one to seven days are indicated until a cure is obtained.

As every patient once afflicted with this disease is subject to a recurrence, prophylactic measures become an important consideration. Maintaining a robust general health, vigorous friction with tooth brushes regularly applied at bedtime and on arising—having four brushes in use so that they are not water soaked when employed—and the rubbing continued for three or four minutes, to be followed with a disinfectant mouth wash—the fluid to be retained in the mouth three minutes—are the measures from which I have observed good results. Pyorrhœa subjects should have the mouth examined for pockets every three months.

Dental Review.

OXYCHLORIDE OF ZINC AS A ROOT FILLING.

By D. H. T. KING.

Oxychloride of zinc as met with in the dental depots consists of a watery solution of chloride of zinc in one bottle and the powder in another. The powder having been prepared for use as a filling material, has mixed with the oxide of zinc such materials as powdered slate, flint, feldspar, silix and borax, this to improve the colour and give hardness. Particles may be found too coarse to enter a fine canal. For that reason I prefer the oxide alone ; mixed with the fluid it gives a dead white and is superior to paper or anything else for lining frail teeth to improve their colour.

The oxide of zinc can be found at any drug store, and the fluid may be prepared by placing zinci chloridi $\frac{3}{4}$ in a flat porcelain or glass dish and allowing it to stand a few days in a damp place. It will take from the atmosphere water enough to deliquesce, or you can make your liquid by fully saturating muriatic acid with metallic zincs, allowing it to stand a day or two uncorked. Either solution should be filtered before being bottled for use.

Its strong affinity for water is one of the best points in favour of this material for root canal fillings. You all know that in the use of gutta-percha the prime requisite is absolute dryness. This I conceive is very difficult to obtain in many canals we find. I feel certain that hot air will not dry them, and have never seen a root dryer that was fine enough to go where we are able to put some of the fine bristles we use.

If you attempt to work chloro-percha into a canal that is not dry the material will not leave your dry broach to adhere to the walls but will come back. Not so with this material, its affinity for water is greater than the mechanical hold on the broach and it will stay. The only effect moisture in the canal can have is to make the mixture a little thinner.

I understand the claim for gutta-percha as a superior root filling, to be that it is more easily worked and more certain in the results. Neither of these claims in my hands have been proven to be true, for after filling the canals in dozens of freshly extracted teeth with chloro-percha, I have found myself unable to make any more perfect fillings than with the oxychloride.

HOSPITAL ABUSES.

A curious and instructive anecdote anent hospital abuse has recently been made public, in respect of the Birmingham Eye Hospital. One of the visiting staff of the hospital relates that nearly every week, one or more of his private patients would declare that it was foolish to pay fees when their friends went to the hospital and obtained the same advice for nothing. A patient from a neighbouring town, who earned about ten pounds a week, was reproached for going to the Eye Hospital, and he replied, "I know I can afford to pay, but I am not going to pay. Is it because I

have been steady all my life and have saved money that I am to be punished for these virtues by being called upon to pay ? If I had been thriftless and a drunkard I should have been a proper patient and admitted without question." Some little while ago the surgeon referred to removed a cataract from a person of limited means, and was paid a twelve-guinea fee for the operation. This person had a friend who also suffered from cataract. The friend had a pension of £150 a year, and £3,000 to £4,000 capitalised. This man went to the Eye Hospital, paid a shilling registration fee, and had his cataract removed. Afterwards he used to laugh at his friend, exclaiming, "How much did your eye cost you?—£12 12s. Mine only cost twelve pence!" One is tempted to ask whether such abuses as this are special to the Birmingham Hospital ; but as a matter of fact, it would be scarcely too much to say that most public hospitals in England are "tarred with the same brush." The prostitution of charitable institutions to the base use of mean but comparatively rich people is almost universal, but we can see that it will need a great agitation to put a stop to it. The lower middle classes are strongly interested in maintaining it, and so are the managers of hospitals, who gather in the subscriptions, while the benevolent public are, in a general way, such fools that they do not know and never think to what purpose they give their money, or whether they are doing good or harm thereby. If the system is ever to be reformed, the medical profession must work out its own salvation, and here again immense difficulties stand in the way. The medical officers of hospitals, though many of them have to deny themselves domestic comforts for want of paying patients, find themselves compelled to "stand in" with the system lest they might forfeit the support of the secretarial wire-pullers of the hospital, and thus lose the position which is essential to their professional existence. The true remedy for hospital abuse—a remedy far distant and difficult of attainment—is to educate the wealthy benevolent up to comprehension of the fact that, in contributing to hospitals, they very commonly are doing mischief, helping administrative corruption, throwing their money away, encouraging mean and unscrupulous people, depriving the really poor whom they desire to serve, of the benefits of hospital treatment, and lending themselves to gross injustice to the poor and to the medical profession. Those who have undertaken the agitation against hospital abuses cannot too soon lay to heart the conviction that it is

totally useless for them to attack public sentiment at the medical side. The wealthy benevolent care not one straw for the general practitioner or his grievances; neither do the comfortably selfish middle classes; neither do the managers of hospitals, who make a good thing out of the existing system; neither do the opulent consultants who derive Pecksniffian glory from the services which they render, ostensibly to the sick poor, but really for their own advantage. The only thing the indolent benevolent care about is the disposal of their money, and few of them at present take the trouble to bestow a thought even upon that.

Editorial, *Medical Press*.

ORAL ACIDITY.

Among the first indications of the action of acid, locally, upon the dental structure, is the sensitiveness to sudden thermal changes. A slight pain is produced when hot or cold fluids, or when sweets are brought in contact with it, which is soon increased by a perceptible decalcification or chemical erosion of the enamel, producing a roughened surface, and having a special tendency to attack the neck of the tooth where the enamel joins the cement, especially if there be a little recession of the gums, and perhaps is more frequently noticed in patients of the so-called gouty diathesis, and generally gives rise to a chronic inflammation of the gum margin, whether resulting in caries or not.

Stomatological Gazette.

IS INFLUENZA COMING?

For years past that most terrible of scourges, influenza, has swept through and through Great Britain. Gradually its victims have become fewer, and at times one had hoped that the venomous creature was scotched, but alas! it has never really disappeared. One of the things about the malady that gives it such lingering vitality is that an attack, unlike most other zymotics in this respect, fails to give immunity to

the sufferer. When the epidemic wave first broke upon our own islands some seven years ago, it came from China by way of Russia. At the present moment, and for months past, influenza in a severe form, has been raging in the district of Merv. It has claimed an immense number of victims, and although fewer deaths are now reported from the disease, yet on the other hand its virulence has increased rather than lessened. The latest reports state that it leaves severe results; such as heart affections, paralysis and spastic affections of the limbs. Whilst hoping that as a nation we may be spared invasion by this mortal malady, against which sanitary measures seem useless, we must own to some disquietude at its presence in Russia, which has so often been its half-way house so far as Great Britain is concerned.

Medical Press.

ANCHORING GOLD IN CEMENT.

To accomplish this you must have a thorough dryness of the cavity, using chloroform or absolute alcohol to dehydrate it, so that the cement adheres and penetrates the tubuli, otherwise if the strain is great, it is liable to tear away; also prevent the cement from passing over the free margins of the cavity. It might be possible to burnish the gold to cover the margins, but I do not think it good practice to permit the cement to come to the enamel edge. The carelessness of the ordinary operator is so great that a method such as this introduces begets poor work. I believe that this operation has a place in our practice that cannot be ignored, especially for nervous patients and children. I should not advise depending too much on the adhesive properties for anchorage.

Stomatological Gazette.

AMALGAM AS A FILLING MATERIAL.

My estimation of amalgam as a filling material may be stated by saying, if a good article be used in the same locations, under similar conditions, and with equal exactness as in the use of gold, we find it no mean competitor with the fellow-metal in arresting the progress of dental caries.

G. E. Hanna, Dominion.

PYROZONE AND PEROXID OF HYDROGEN.

By W. H. JACKSON, D.D.S., Ann Arbor, Mich.

After using these substances, immediately before the permanent stopping of pulp canals, I was at a loss to account for the frequent disturbances that followed, and found upon investigation, that, although thorough precautions to dry the canals had been made, there would still be gas formed hours after their use had been discontinued. This is not written to condemn the use of these agents, for they are very valuable, and I would not like to be without either of them, but would not advise the use of either agent within a short time of final stopping of the pulp canal, for fear of disturbance following, except when there is a free opening through the gums.

The Ohio Dental Journal.

GLOW-WORM'S LIGHT.

The glow-worm's light is said to have shown to be due to the emission of rays similar to the Röntgen rays. Three hundred glow-worms were caught near Kioto and placed before photographic plates screened from the light by several thicknesses of black paper, together with plates of brass, copper, and aluminium. A piece of cardboard with a hole in it was placed between the metal and the photographic plate, and for two days the arrangement was kept in a dark chamber sheltered from all foreign lights. On developing the plate, however, it was found to be blackened, except the part opposite the hole in the cardboard. The rays of the glow-worm would appear, therefore, to penetrate metal and excite luminosity in cardboard. When there is nothing between the sensitive plate and the glow-worm the rays are said to behave like ordinary light, but in traversing some metals and cardboard they seem to acquire properties like that of the X-rays, or it may be that the glow-worm emits X as well as ordinary rays. This account savours somewhat of the improbable, and in regard to the latter part of it, there may be a third explanation.

Pharmaceutical Journal.

DENTAL HOSPITAL, BIRMINGHAM.

Date	Males	Females	Children under 10 years of age	Free Patients—Male	Free Patients—Female	Old Patients	Total number of Patients attending Monthly	Ether Cases	Gas Cases	Extractions under Ether	Extractions under Gas	Ordinary Extractions	Gold Fillings	Amalgam Fillings	Osteo Fillings	Perm. Gutta Percha Fillings	Temp. Gutta Percha Fillings	Dressings	Scalings	Crowns	Regulations	Attendances for Regulation	Miscellaneous and Advice	Total number of Operations	Root Fillings	Tin	Porcelain Inlays
January	153	236	114		6	408	918	4	225	77	793	378	57	129	104	5	107	109	12	8	5	68	41	1936	42	1	
Feb'y. ...	145	246	96	3		452	942	2	227	51	901	369	91	198	83	1	107	175	11	18	7	96	50	2208	50		
March. .	198	332	146			537	1203	4	299	88	1131	407	155	172	107	8	89	190	13	23	11	100	53	2605	57	1	
April ...	149	271	104			319	873	3	249	22	908	230	91	139	85	5	75	161	10	14	6	54	46	1897	45	6	
May.....	193	270	148			452	1063	1	264		954	288	107	154	128	4	111	242	15	22	4	69	46	2205	57	2	
June ...	143	204	108	1	2	308	766	2	195	35	771	207	78	81	44	6	74	103	11	9	8	34	30	1520	28		
July	981	1559	716	4	8	2406	5765	16	1459	273	5458	1879	579	873	551	29	563	980	72	94	41	421	266	12371	279	10	3
Total ...	1192	247	121	6	1	379	946	4	231	58	898	291	97	104	43	4	112	170	10	22	5	47	45	1963	46	9	2
	1173	1806	837	10	9	2875	6711	20	1690	331	6356	2170	676	977	594	33	675	1150	82	116	46	468	311	14334	325	19	5

G. F. CALE MATTHEWS, House Surgeon.

Dental News.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.

The following Entrance Scholarships have been awarded—
Livingstone Scholarship (100 guineas) to Mr. S. A. Boyd.
Huxley Scholarship (55 guineas) to Mr. W. J. O'Brien.

Universities' Scholarship (60 guineas) to Mr. W. G. Rogers.

Entrance Scholarships have also been awarded to Mr. E. Bayley (60 guineas); Mr. C. L. Lakin (40 guineas); and Mr. G. S. Welham (30 guineas).

A DENTAL ACT FOR NATAL.

A correspondent in Natal writes to Messrs. Ash & Co.: "Our Dental Act has passed, and the first prosecution under it is about to take place; Government prosecutes. It is not necessary under this Act for a man to call himself a dentist, etc.; the performance of a dental operation by an unregistered man is made penal; six months' imprisonment, or £100 fine. We think our Act an advance upon the British. Americans are excluded for the future, but L.D.S. men are accepted. There are now so many dentists in this Colony, that, as they cannot all make a living, some of them are leaving."

A Victorian dental firm intends celebrating the Record Reign by presenting 60 sets of teeth to the "deserving toothless." The "deserving aged" and the "deserving poor" have been much heard of, but the "deserving toothless" sounds novel. There seems a fine opening here for a local chiropodist to take out 60 corns gratis from the feet of the deserving corny; also, if some philanthropist would give 100 hot baths to the deserving dirty, or cut "on the never" the hair of the deserving hairy, it would bring joy to many a Numbler 'Ome.

Sydney Bulletin.

APPOINTMENT.

Mr. W. A. Hooton, L.R.C.P. Lond., M.R.C.S., L.D.S.-Eng. has been appointed Dental Surgeon to the Manchester Royal Infirmary, *vice* Mr. G. W. Smith, M.R.C.S., L.D.S., resigned.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester
during the month of SEPTEMBER, 1897.

Number of Patients attended	889
Number of Extractions	536
Number of Extractions under Anæsthetics	262
Gold Stoppings	99
Other Stoppings	116
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	212
Gold and Porcelain Crowns	15
Inlays	0
Total	2129

OSWALD TIDSWELL, *House Dental Surgeon*

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

Twelve Months (post free) . . . 14s. od.

Post-office Orders to be made payable at the Langham Place Hotel Office, to G. E. Skliros, 289 & 291, Regent Street W. A single number sent on receipt of seven (penny) stamps.

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LONDON, NOV. 1, 1897.

VOL. XL.

THE EMPLOYMENT OF CHLOROFORM FOR DENTAL OPERATIONS.

By DUDLEY W. BUXTON, M.D., B.S., M.R.C.P.,
Administrator of Anæsthetics and Lecturer in University
College Hospital; Anæsthetist to the London Dental Hospital
and the Hospital for the Paralysed and Epileptic, Queen's
Square, Bloomsbury.

The recent deplorable fatality at Rhyl, when a woman in the vigour of life died in a dentist's rooms has reawakened the question whether chloroform is a suitable anæsthetic for use when teeth have to be extracted. Perhaps the enquiry is not so simple a one as at first sight appears, it certainly involves many important side issues of which not a few must be regarded as at present still *sub judice*.

It was at one time urged in the medical press that tooth pulling was an operation so trivial in itself that no anæsthetic was required, and that the risk involved in giving chloroform was disproportionately great to the advantage gained by the patient. Sir Thomas Watson, that Nestor in medical philosophy, combatted the former position, and agreed with Dr. Snow that no operation if acutely painful, as the extraction of several teeth must undoubtedly be, is too trifling for the use of an anæsthetic. It is at present conceded that there is no heroism for the strong to bear pain, if there are means whereby it may be obviated, while the weakly and diseased

incur no slight risk if their nervous system is not protected from the shock incident to acute suffering.

Whether the anæsthetic to be employed should be chloroform is another matter, and it may perhaps be best discussed by considering what arguments may be advanced for and against the practice. Snow* has recorded his experience of 867 operations in which 3021 teeth or stumps were removed. This gives an average of 3.4 teeth at one operation. The maximum number of teeth removed at once was nineteen. Dealing with the inadvisability of dental operations Snow writes, "but these gentlemen" (naming the most distinguished dentists of his day), "and others, as well as myself, have thought it better as a rule, to make more than one operation, when the number of teeth to be drawn exceeded ten, in order that the mouth might not contain too many wounds at one time, and that the loss of blood might not be very great."

In 181 cases Snow gave chloroform for the removal of a single tooth, of these patients one was aged 86!

What were Snow's precautions against accidents? "The patients have been seated in an easy chair in all the operations on the teeth, except in a very few cases, where a female patient was too ill to sit up." "In many cases, and always if there were any feeling of faintness, the patient has been placed on a sofa, after the operation, for twenty minutes or half an hour." "I am not aware," says Dr. Snow, "of any inconvenience from the chloroform in any of the cases of tooth drawing, excepting sickness and vomiting, which in a very few of the cases have been very troublesome for some time." Snow did not believe that as is now taught, the sitting posture was a source of danger, for in another place he says, "It does not appear that the position of the patient has had any share in causing or preventing accidents." Snow's method of administering in these cases was: He made his

* On Anæsthetics, 1858, p. 313 *et seq.*

patient unconscious and continued the inhalation after unconsciousness was induced, "until the sensibility of the edge of the eyelid is very much diminished, or altogether suspended, otherwise the patient will probably make a resistance that will interfere with the operation, or scream out and alarm his or her friends." Four minutes was his usual time of administration, and he used his well-known inhaler which prevented an unduly rapid evaporation of the anæsthetic. If five or six minutes are taken in producing anæsthesia," says Snow, "the patient would be slower in recovery."

Operation was not allowed until the third degree of excitement had passed away, and the power of movement was lost, although as Snow expressly states "muscular rigidity might still be present, giving rise to some difficulty in opening the mouth." "Chloroform has occasionally to be repeated in tooth drawing before the operation is completed, especially in cases where several teeth require to be extracted." He gave successive doses whenever the patient evinced signs of consciousness.

In Snow's list of fatalities under chloroform Case 2 was one in which the anæsthetic was given by a dentist himself for a dental operation. It occurred February 23, 1848, the patient was a healthy woman, aged 35, and she died through an overdose of chloroform. The inhaler used was Morton's Ether Inhaler, one quite unsuited for giving chloroform, but the mode of death presented points which are very much like many of the more recent cases. "While inhaling the face became pale." After one minute or one minute and a quarter the teeth were extracted. The patient groaned and manifested what they (two female friends) regarded as evidences of pain while the teeth were being taken out, but showed no other sign of suffering. After two minutes the woman became rigid and the pulse grew feeble and stopped. The face became livid. She was kept sitting for 5 to 10 minutes

after this. Snow, commenting upon the case, says, "The period of inhalation a minute or seventy-five seconds, during which the patient took 12 or 15 inhalations, did not admit of uniform distribution of the chloroform throughout the blood." The increase in the effect is due to the further absorption of the chloroform in the lungs during the continuance of the operation. The cry was not one of pain, but an ordinary phenomenon of dissolution. In Snow's experiments upon the lower animals, he found that it constantly occurred when a concentrated vapour was inhaled by them. In the *Lancet's* Report of its commission enquiring into the Administration of Chloroform and other Anæsthetics from a Clinical Standpoint,* fifty-six deaths under chloroform during dental operations are recorded, and it is said that "although out of under 700 cases it appears a very large per centage, yet chloroform is used extremely frequently in country places for tooth extraction." The chief cases briefly are as follows ;—

CASE 13. The patient *was seated*, chloroform was given from a handkerchief. As she did not become insensible *more chloroform* was given, and she gave a deep inspiration, became pallid and died.

CASE 16. Chloroform on sponge enclosed in napkin, lividity. The operation seems to have been attempted several times, but unsuccessfully. She died under the sixth administration. The constancy with which we notice that after failing to get the patient fully under, at length a fatal dose is taken is most noteworthy, and demonstrates our contention that in most of these deaths the chloroformist adopted a faulty method, and at length, with a courage of despair, presented to his patient a lethal dose which produced the required composure. The patient was thus in imminent danger,

* Report of the *Lancet* Commission appointed to investigate the subject of the Administration of Chloroform and other Anæsthetics from a Clinical Standpoint." *Lancet* Office, 1895, p. 104 *et seq.*

although such was not supposed to be the case. The dentist commenced his work, and as he proceeded the chloroform left in the lungs was gradually absorbed and the medullary centres irretrievably paralysed, "sudden death," so called, taking place.

CASE 24. The patient, aged 36, took chloroform *from a handkerchief*, and died during the operation *one minute* from the commencement of the administration.

CASE 28. A female, aged 32, inhaled, it is said, 25 drops of chloroform from a *sponge inclosed in a handkerchief*. After 4 or 5 inspirations the patient stretched her limbs (muscular spasm) became blue and died. Operation not commenced.

CASE 54. Patient a female, aged 36, inhaled a drachm and a half *from a handkerchief*. While speaking gave a convulsive start with a stertorous inspiration, sank upon the floor. Patient was *seated in a chair*. The operation was not commenced.

CASE 60. A male, aged 60, *in sitting posture*, death said to be due to syncope.

CASE 64. A female, 64, *inhaled from a handkerchief in the sitting posture*. Operation was completed.

CASE 77. Female, aged 29, inhaled *in the sitting posture*, 40 drops *from a handkerchief*, which produced much excitement. 20 drops more given, patient became calm, conjunctival reflex present when head suddenly fell to one side, face paled, and patient died after a few gasps.

CASE 82. A male about 15 inhaled *in a sitting posture*. Death said to be due to syncope.

Series B.—The following cases occurred between 1860 and 1891:

CASE 13. Patient, a male, inhaled *in sitting posture from a handkerchief*; after the extraction of a tooth a convulsion (muscular spasm) occurred and he died.

CASE 14. Died while inhaling *in sitting posture*.

CASE 46. Female, aged 30, inhaled *in sitting posture*, after 6 or 8 teeth had been extracted struggling was followed by complete muscular relaxation.

CASE 50. A female inhaled in the sitting posture fifty drops in two doses *from a napkin*.

CASE 64. A female, aged 20, *in sitting posture*, inhaled a drachm in three doses *from a sponge*. After inhaling forty minims the patient being still conscious three teeth were removed. The remaining twenty drops were then given and more teeth extracted. Sudden pallor with dilatation of the pupils appeared.

CASE 81. Patient *in sitting posture*, after extraction of teeth "rallied for a while and then expired."

CASE 86. Female inhaled *in sitting posture*.

CASE 95. Female, aged 35, inhaled two drachms (or less) from a sponge. After three or four breaths respiration stopped.

CASE 102. Female, aged 33. After removal of eight or nine stumps the patient became livid and died.

CASE 110. Female *in sitting posture* had inhaled chloroform twice at the sitting, and during the third inhalation after extraction of the teeth the respiration stopped.

CASE 112. Female *in sitting posture*, became convulsed (muscular spasm) after the extraction of the teeth.

CASE 123. Female inhaled *in sitting posture*.

CASE 148. Female inhaled *in sitting posture from a napkin*. After extraction of four teeth patient appeared to become conscious again, and successive doses of chloroform were given until all the teeth (12) were removed. There was then some vomiting and retching, and the patient "appeared to strangle" and *suddenly* expired.

CASE 161. Female patient in perfect health expired five minutes after the extraction of the tooth.

CASE 162. Female patient *in sitting posture* died from difficulty of breathing $1\frac{1}{2}$ hours after the completion of the operation.

CASE 170. Female *in sitting posture* inhaled *from a napkin*. *Incomplete anæsthesia*, patient screamed loudly as a tooth was removed and fainted. Eight teeth were extracted "A delicate nervous woman."

CASE 171. Female *in sitting posture* inhaled three drachms of chloroform from a cone formed from a rolled handkerchief. *Anæsthesia partial*, deathly pallor appeared and patient fainted.

CASE 193. Female, aged 31, *in sitting posture*, half an ounce of chloroform given.

CASE 219. Female *in sitting posture*, became faint.

CASE 228. Female *in sitting posture*.

CASE 229. Male, aged 12, *in sitting posture* inhaled *from a napkin*. Supposed to have heart disease. Inversion unsuccessful.

CASE 239. Female, aged 42, *in sitting posture* inhaled *from a conical sponge*, coincidentally with the extraction of tooth the pulse stopped.

CASE 257. Dental operation ; no particulars.

CASE 259. Female *in sitting posture*.

CASE 273. Male, aged 14, *in sitting posture*, chloroform given immediately after a heavy meal. Died immediately tooth was extracted.

CASE 276. Female inhaled *in sitting posture*.

CASE 283. Female *in sitting posture*, after removal of 2 or 3 stumps sudden death took place.

CASE 289. Female, aged 30, *in sitting posture*.

CASE 342. Male, aged 26, *in sitting posture*. After two teeth had been extracted "it was found the patient had ceased to breathe."

CASE 349. Female, aged 35, inhaled over two drachms

from a Skinner's mask. When stumps were being removed the patient jumped up and struggled with the operator. In two minutes she swooned.

CASE 367. A dental operation; no particulars.

CASE 390. Do. Female *in sitting posture*.

CASE 394. Female, aged 35, two drachms given by the dentist, *sitting posture*.

CASE 395. A male *in sitting posture* inhaled two drachms from a folded towel.

CASE 399. Male, aged 10, *in sitting posture*.

CASE 409. Female *in sitting posture*.

CASE 410. Female, in sitting posture, died as last tooth was removed showing sign of returning consciousness.

CASE 412. Female, aged 17, *in sitting posture*.

CASE 438. Male, aged 33, *in sitting posture*, fainted after extraction of two teeth.

CASE 455. Female, *in sitting posture*, pupils dilated patient died suddenly.

CASE 458. Female, *in sitting posture*.

CASE 459. Male, aged 13, *in sitting posture*. Got up immediately after extraction, and fell back dead.

CASE 460. Female, *in sitting posture*.

CASE 517. A female, *in sitting posture*, fell out of chair dead, after only a few respirations.

CASE 587. A lad, aged 11, inhaled from a towel *in sitting posture*, one tooth had been removed, a little more chloroform had been given, when the boy suddenly grew pale and died.

Among the "untoward cases," i.e. "cases in which although dangerous symptoms developed, yet resuscitative measures resulted in the recovery of the patient," the following, taken from the same Report, are of interest.

CASE 64 (p. 160). A female, aged 16 inhaled (apparently) *in sitting posture* from a napkin rolled like a cone. After

extraction of the tooth the patient fainted, was restored by artificial respiration and inversion. Upon placing her in horizontal position she again fainted, but was restored by inversion.

CASE 77. A similar case, but no particulars.

CASE 103. A boy of 13, respiration and circulation failed twice, operation completed under ether.

There is this similarity between Snow's cases and those given in the Lancet Commission's Report, that the patients were all seated. An important dissimilarity is that Snow recognised the extreme importance of limiting the actual quantity of the anæsthetic inhaled, and took measures accordingly. In his cases it was practically impossible for his patients to obtain a high percentage of vapour. Thus they were safeguarded in an important particular, but not wholly, and there is little doubt that Snow would eventually have recognised the absolute importance of the horizontal posture when chloroform is given. In the Lancet cases the methods of giving the anæsthetic were almost uniformly dangerous even in the hands of the most expert and experienced chloroformist. The "sponge," the "handkerchief," the "cone made of a towel," or napkin are all simplicity itself, but are individually as capable of giving the patient an overdose, as of keeping him quiet in a safe zone of anæsthesia. As the last contingency depends not only upon the ability, skill and patience of the chloroformist, but upon the behaviour of the patient, it is highly probable that the short step into perilous overdosage will be taken almost without warning. The times of induction, when stated, were mostly so short that although but a small amount of chloroform was actually inhaled, yet there is no doubt that the actual quantity in the time did not as Snow said of the case inferred above, "admit of uniform distribution in the blood." Certainly in the cases cited above various agencies were at work. Some instances, as No. 13, a

single overdose was inhaled by an unusually deep inspiration. Such cases are common enough. The patient is nervous and holds her breath, or breathes so shallowly that little progress is made; time goes on, both operator and chloroformist are busy men, and the temptation arises to lessen the air supply, or throw more of the anæsthetic upon the handkerchief. Here comes in the danger. The voluntary restraint of breathing is overcome, a few deep gasps are taken, and the patient "goes over nicely," unhappily never to awake again. Some of the deaths are clearly due to a fatal syncopal attack, probably induced by fear, operation shock, and predisposed to by the inhalation of the chloroform, a point to which we shall return later.

In certain instances, such as Cases 170 and 171, incomplete anæsthesia is mentioned, and the presumption is that the chloroform having acted sufficiently to lessen the resistance to peripheral stimuli traversing nerve channels to nerve centres, the stimulus conveyed by injury to a branch of the fifth pair of cranial nerves caused by the dental operation was conveyed to the brain and a reflex inhibition of the heart took place. This theory advanced by Lauder Brunton, was not supported by the experiments of the Hyderabad Commission. They partially anæsthetised monkeys and dogs, and extracted teeth and performed other painful operations, but in no case did reflex inhibition of the heart take place, but as the dogs were in most cases lying in the horizontal position, a highly important difference was introduced. That reflex inhibition of the heart can occur has been commonly asserted, and it has been contended that many cases of so-called deaths from chloroform are deaths from fright. Such fatalities are quite analogous to the deaths recorded in the older books on surgery as occurring upon the operation table, and before anæsthesia was discovered or practised.

But as Leonard Hill points out,* we have absolutely no proof that the vagus can or ever does inhibit the heart in this way.

(To be concluded.)

A DEMONSTRATION BY DR. BONWILL.

By WM. RUSHTON, L.D.S. Eng.

There are few, if any, names in the dental profession better known than that of Dr. Bonwill. The crown and the engine mallet which bear his name have made that name familiar to most of us, while in many other directions his energy and ingenuity have found scope in inventions which he has placed unprotected by patents at the disposal of his brethren. Having received an invitation to attend a demonstration at the Institute of Dental Technology, I availed myself of the opportunity.

Dr. Bonwill is a man of sixty-four, rather below the medium height, and stands erect. He has long iron-grey hair, white moustache and "imperial," wears spectacles and is very deaf. Full of fire and energy, he commands attention not only by asking for it and expecting it, but also by being possessed of fluent speech and boundless enthusiasm.

When I entered he was explaining his engine, which is tolerably well known in this country. It has a cord running fairly slack right on to pulleys on the handpiece, and Dr. Bonwill claims for it that it runs at one half less foot pressure than any other. If he is using it for any purpose which requires a very high rate of revolution (as in trephining), he hitches off the pedal attachment and employs an assistant to turn a handle which is fixed to multiplying cog-wheels on the off

* J. of Physiology, vol. xviii. p. 47.

side of the driving wheel. He has several attachments which are models of excellent workmanship. One, the handpiece for ordinary burs, works very smoothly and true even when a large bone-excavating bur, as large as a hazel nut is working. Another, in addition to carrying a bur, can be immediately converted into an engine mallet. Others are a right angle attachment, a right angle mallet, and a safety bur for trephining the skull, which he is bringing to the notice of Professor Victor Horsley. His improvement on the Herbst method is that in his attachment the burnisher has not only the rotary, but also the mallet action which he claims is an advantage.

His favourite matrix for contouring amalgams is impression composition. His method is as follows: Place a clamp on the tooth and having softened the composition, pack it round the tooth and clamp, trimming it up to the required shape. It then not only acts as a matrix, but also as a dam to exclude moisture. Pack in the amalgam with bibulous paper, using considerable force, and when the filling is nearly complete, burnish some of the alloy filings into the surface to absorb mercury. This ensures a hard filling, strong on the periphery, full contour and articulation, and whiter in colour than could otherwise be obtained. Quick work is necessary for the best results. He deprecates the use of gold or tin to absorb mercury as a different element is introduced, and the same hardness cannot be obtained. If two adjoining cavities are to be filled, place the one matrix round them both, and divide with a file afterwards. The matrix can be removed with a hot instrument. His routine plan is to temporarily fill all interstitial cavities with pink sheet gutta-percha. This is left in for some months, and exercises a separating action on the teeth, which admits of a full contour when the permanent filling is introduced. For three months before coming to Europe he has filled all such teeth with this material, and

he will complete his operations upon his return. In finishing off cervical edges he has a fine-cut narrow right-angle tapering finishing-bur which he runs between the teeth. This bur he also uses to cut out incipient interstitial caries in the lingual surfaces of incisors, taking care to let the tips of the teeth remain in contact. He guarantees that no fresh caries will result in the tissues so treated.

In gold filling he is a great admirer of Abbey's soft gold foil. This is the only soft gold which to his knowledge remains non-cohesive after annealing, and he considers that it should always be placed next the dentine, as it is a great tooth-saver. Cohesive gold will adhere to it, and can be used for the contouring part of the operation. He uses for the soft foil some serrated hand pluggers, which he has used for the last twenty-five years. They are of the foot-plugger shape.

For cohesive gold, on the contrary, he uses smooth-ended elephant-foot pluggers in his engine, "wiping" the plugger along the surface of the gold as the blows are so rapid. In this manner he claims that he can make a solid plug of a book of Abbey's foil in twenty-five minutes. He also speaks of a filling which he did by hand pressure without using a napkin, which took four hours to do, and which used up two books of Abbey's foil. This filling has been doing good service for twenty-five years. He says he would use amalgam in such a case now. Abbey's soft foil should be heated on platinum foil, but the cohesive foil he anneals in the naked flame at a higher temperature. He hopes to return in 1900, and by that time he hopes to have given up using gold at all. What he will use instead he did not divulge. He has found that if a carious tooth is thoroughly dried, and the caries saturated with paraffin by means of heat, that no fresh trouble commences, as acid has no effect upon paraffin. Also after putting in any filling he runs melted paraffin round the margin, and so fills up any possible leak hermetically. He

also uses it in oxyphosphate filling, saturating the filling after insertion, and he claims that such a filling will last five times as long as one not so treated. It will wear away on a grinding surface, but will not wash away as is usually the case in interstitial cavities.

Dr. Bonwill showed an articulator which is the nearest reproduction of the human jaw we have yet seen. By it, one is enabled to obtain lateral and forward motion of the lower model as in nature. In full artificial sets he grooves his upper and lower grinding teeth, making the outer rim of the groove in the lower set fit into the middle of the groove in the upper. This he claims is the nearest approach to perfection we can obtain by artificial means and that the comminution of the food is performed much more effectually than by inserting the usual more or less flatly topped teeth. He explained how he gradually became convinced that the human jaw was arranged on geometrical principles, and that the articulator was the result of this conviction. This was rather abstruse, and, in fact, seemed to many somewhat fantastic. He finds the articulator of great use in pyorrhœa and in regulation cases. His theory of pyorrhœa is that it is caused by annihilated or perverted function, and that if the function of a tooth is restored the pyorrhœa will cure itself. He claims that in a practice of forty-two years he has had no pyorrhœa among his *own* patients. In regulation cases he sees the models in the articulator from every point of view, and he says it has taught him great respect for the first permanent molar, which he never extracts for regulation purposes. His theory of the canine teeth being so large, prominent, and interlocking—as in the carnivora—is that they were intended in the long jaws of animals to act as guides in the proper closing of the jaws like the pin half way down the shaft of a pair of dressing forceps to make them close truly. He does

not believe in Darwin's evolution theory, and never uses cataphoresis.

He hopes to set about writing a book containing his experiences of forty-two years work, and it will no doubt prove interesting reading. He is a man of original thought and lofty ideas, which he endeavours to carry out. Some of us cannot see eye to eye with him in all his various theories, but we must all agree in considering him a remarkable man and one of whom the profession may well be proud. When I left, he was relating to an operating surgeon how he had successfully drilled into and broken up a stone in a woman's bladder by means of a drill in his engine after attempts at its removal by forceps had failed on account of its large size and firm impaction in the tissues.

THE LATEST VOLUME OF THE DICTIONARY OF NATIONAL BIOGRAPHY.—According to the *British Medical Journal*, the most extensively known name in the present volume of the Dictionary is undoubtedly that of the Rothschild family, the rise of which is traced from Meyer Amschel Nathan Rothschild, of Frankfort-am-Main, who was born about 1745, and died in 1812. His third son, Nathan Meyer, who was the founder of the London branch, was sent to Manchester in 1797, settled in London in 1805, and died in 1836 while on a visit to Frankfurt. Through one of his agents, a man named Roworth, he was informed of the victory of Waterloo before any one else in London; but the story that he himself brought the news from Waterloo and was able to open large financial transactions before it was generally known, is declared to be mythical. The Evelina Hospital for Sick Children in Southwark was named after one of his grand-daughters who died in 1866.

British Journal of Dental Science.

LONDON, NOVEMBER 1, 1897.

METHOD.

One of the deficiencies from which a professional man is liable to suffer is want of method. In the ordinary routine of commercial life, methodical habits are quickly inculcated, for in the bustle and stress of trade and competition the man who does not conduct his affairs in an orderly and systematic manner would soon be outdistanced by his more methodical rivals. The professional man on the other hand may lack much of this quality and yet succeed in his profession fairly well, although in professions as well as in commerce, business-like habits have their reward. The student's chief aim is to train his hand and his mind; to make the one skilful and the other analytical, experimental, deductive and logical. The business part of his training often does not begin until he is in practice for himself. It is then learnt by the wise from experience; by the unwise it is not learnt at all. In medicine, one of the advantages of the old apprenticeship system was that the pupil received an early training in systematic routine from his master, while the lack of such training among barristers is often mitigated by a season spent in the office of a solicitor. In our profession it depends largely upon the pupil himself, upon the training received in his mechanical pupilage and the supervision of the officers at his hospitals. If the master is careless or inefficient and the hospital system is slack, a grave injustice is done the student.

An old adage quaintly says,

“Jack has gone to school
To learn to be a fool.”

and the folly of training the intellect without also training the orderly and methodical faculties has been often exemplified. While strongly discountenancing the idea that "getting on" and money-making are the be-all and end-all of our existence, we maintain that a man who uses business-like and systematic methods is much more likely to benefit his fellows as well as himself than one who, although he may be more richly endowed by nature, lacks these attributes. Ours is a profession which is a trying one both to mind and body. While we are at our work, both hand and mind are continually on the alert; we are working on sensitive material and our attention must never be allowed to wander. Hand and eye must be true and steady, and our best selves must always be at the service of our patients. But hand and eye will not last for ever, and it is the usual estimate that the duration of our professional life is only twenty-five years on the average. Thus while the doctor or the lawyer may be rising to the zenith of their practice at fifty, the professional life of the dentist may be said to be waning or finished at that age. We have heard people remark on more than one occasion that they would not go to a dentist who had called in the aid of spectacles to assist his eyesight, or who was getting elderly. Bearing these facts in mind it is only fair that while we work we should not only be adequately rewarded but also that by a systematic disposal of our time and money, and by conservation of our health and energy, we should make provision for that old age which, alas, comes too soon to all of us.

Books or charts should be kept of the work done for our patients, not only for their advantage but for our own. They assist us in making a diagnosis, they acquaint us with the comparative value of fillings, and they sometimes inform us with joy that the "filling which has come out" was inserted by some other hand. Books also should be kept to inform us of our own affairs, to tell us how much work we have done, what our expenses are and why they vary, what debts have been collected, and what has been lost in bad debts. If a practice has to be bought or sold, a well kept set of books is a most important matter, and if they are kept

systematically, the small time each day spent upon them is well expended. The point has often been argued as to which is the better for a youth, a business training or a classical education. We do not take upon ourselves to decide. One will make him a successful man, but the man who is "successful" and nothing more is a poor creature; the other will enable him to go through life with wider sympathies and perhaps with tastes and aspirations he can never satisfy. We think the happiest man is the one who being possessed, though only perhaps to a moderate extent, of both, makes each control the other, bearing in mind Herbert's words—

"In thy thriving still misdoubt some evil
Lest gaining gain on thee and make thee dim
To all things else."

THE CALENDAR OF THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.—According to the calendar, the Board of Examiners in dental surgery have held two meetings for the examination of 141 candidates, 96 of whom received the Licence and 43 were referred. The fees received from candidates amounted to £1,029, of which the Board received £592 4s. The Licentiates in dental surgery are stated to number 1186 (or an increase of 94 over last year).

DEATHS FROM NEURALGIA REMEDIES.—A youth named Kenyon, of Yardley, has been killed by chloroform. He was found lying dead in bed with a handkerchief which had been soaked in chloroform, placed over his nose and mouth. The medical evidence at the inquest showed that death was due to the inhalation of chloroform, although it was quite possible that the actual cause of death was suffocation by vomited matter in the mouth rather than poisoning by chloroform. A verdict of death from "misadventure" was returned. Another victim of neuralgia, John W. Thulus (21), clerk, of Atherton, while staying at New Brighton, took laudanum to relieve pain, and died from the effects of an overdose. The same verdict was returned as in the

Yardley case. That these people obtain such dangerous drugs seemingly without any difficulty shows great carelessness on the part of the chemist, or that the Sale of Poisons is far too unrestricted. It also shows to what lengths some people will go before applying to the dentist for help.

A DENTIFRICE FOR DARK ENAMEL.—The following is a dentifrice recommended in *L'Odontologie* for the use of persons the enamel of whose teeth has become discoloured.

R	Chlorate of Potash	...	ʒiss.
	Powdered Boracic Acid	...	ʒiii.
	Carbonate of Magnesia (heavy)	do.	
	Precipitated Chalk	...	do.
	Ess. of Peppermint	...	five drops.

ALLEGED BURGLARY AT DENTISTS. — Henry Lye, was charged with burglariously breaking and entering No. 63, Grand parade, Brighton, on the night of September 24th, and stealing two gold rings, two broaches, a set of false teeth, a pair of eyeglasses, and several other articles, to the value of £6 10s. The house is the residence of Mr. D. Caush, dentist. Annie Coombs, cook at the house, deposed that on the morning of the 25th she came downstairs about twenty minutes past six o'clock, and found the area door open. The lock on the area door was in no way damaged. During a short time on the evening of the 24th the door was left unfastened, and a person might have walked in and hidden himself. The case was sent for trial at the Quarter Sessions.—Mr. D. W. Parsons, dental surgeon, residing at 23, Oxford street, Liverpool, was in his bedroom undressing, when he heard a noise in the lower part of the house. Taking a revolver with him, he crept quietly down the stairs, and on getting into the kitchen discovered a man there. The latter, on seeing the shining barrels of the revolver, made one jump clean through the window into the back yard, and, scaling a wall, dropped into the long entry

and got clear away. Mr. Parsons then went to the front door, and, blowing a police whistle, several constables appeared on the scene. The gentleman then told them what had happened, and gave a description of the man. The neighbourhood was searched for a long time, but without any trace of the man.—Can it be that the profession is becoming so wealthy that it excites the cupidity of the enterprising burglar?

DEATH FROM STRYCHNINE.—The *Nottingham Guardian* says that the mysterious death of Mrs. Burton, wife of Mr. Frank Burton, tailor, Gainsborough, which took place under circumstances suggesting poisoning from strychnine, was inquired into by the coroner and a jury at Gainsborough. The internal organs of the deceased had been analysed by Dr. Muter. Mrs. Burton it seems received through her son from the shop of Mr. Richard Burrows, chemist, Gainsborough, a mixture supposed to be citrate of iron and quinine, which she swallowed, and death took place soon after. Dr. Sladér was called in, but could not save her life. He made a post-mortem examination, and the stomach, etc., was forwarded to Dr. Muter. The analyst's evidence showed that the bottle from which the chemist supplied the mixture contained citrate of iron and strychnine, and not citrate of iron and quinine, and also that the bottle containing the remainder of the dose purchased by deceased contained iron and strychnine, and that the deceased had taken just sufficient to cause death. A verdict was returned that deceased died by strychnine poison, sent by mistake for citrate of iron and quinine, and received by the local chemist from the wholesale firm of manufacturers in London, with whom he usually deals. They also added a rider that the chemists in question should in future adopt a system of checking those who filled the bottles and labelled them, and the assistant was cautioned as to preparing medicine and weighing ingredients for the future. Citrate of iron and quinine is one of the most elegant and favourite preparations in the *Pharmacopœia*. It is much beloved by the British public in want of a tonic or

neuralgic remedy. The citrate of iron and strychnine is very similar in appearance, and a mistake between the two is as easy as it is lamentable.

TOOTHACHE AMONGST ANIMALS.—Where *Pearson's Weekly* obtains its multitudinous and often sensational paragraphs we know not. We do not vouch for the truth of the following, though we see no reason to doubt that dogs' or horses' teeth can be filled. "Formerly, when a dog began to howl with the toothache, he was hurried off to the dentist, and the cause of offence removed; but now the experienced operator examines the grinder, and fills it with gold or other stopping according to price. This filling has to be renewed at intervals, the length of which depends upon the food eaten by the animal; if the dog is fed on hard foods, the filling comes out much sooner than in the opposite case. The operation is simple. An assistant holds the dog's head, and the dentist himself wears thick gloves in case a twinge of pain should cause the patient to forget his manners so far as to make a grab at the hand that is trying to help him. But a wary dog-dentist judges of the animal's disposition for himself, and does not place any faith in the owner's assurance that the pet 'wouldn't harm anybody'; he wisely prefers to run no risks, and if he thinks it advisable he chloroforms the patient.

THE NEWCASTLE DENTAL HOSPITAL. — Established in 1895, the Newcastle Dental Hospital has since continued to fill an exceedingly useful part in the life of that city. Prior to the inception of the hospital, humanity, suffering from defects of the dental system, had nowhere to go for relief save to the Infirmary or Dispensary, and then there was nothing beyond "extraction." The establishment of the hospital came about in this way. All the licentiates in dental surgery practising in Newcastle were summoned to a meeting, and the gentlemen present formed themselves into a committee, and agreed to start the hospital, and further personally guaranteed to secure its continuance for a period of three years. Suitable premises were secured at the corner of

Nelson and Clayton Streets. Internally the building was in a deplorable state of repair, and a considerable sum of money was spent before the place was got into order. Appeals were made to large dental supply firms and others, and fittings and furniture were presented to the institution. At the present moment the hospital, in the matter of appliances, is excellently equipped. The hospital has been approved by and is recognised by the Royal College of Surgeons. The hospital staff consists of one consulting physician, one consulting surgeon, six dental surgeons, and three administrators of anæsthetics. Students of dental surgery are admitted, a course of study here being acknowledged as part of the necessary curriculum prior to their becoming licentiates in dental surgery. It has been incidentally suggested that probably it will be a wise thing, when the new Infirmary is built, that the Dental Hospital should be provided with a wing sufficient for its purpose.

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THE COMPOSITION OF A MUCH ADVERTISED DENTIFRICE.
—*Science Siftings* gives the following analysis of a sample of "Floriline" which they purchased :

Alcohol (absolute)	...	38.8	per cent. by volume
Water	...	61.2	" "
Total solid matter	...	19.09	" by weight
Ash	...	2.46	" "

It goes on to say, "It is claimed by the makers that the body part of 'Floriline' is composed of 'honey, soda, spirits of wine, borax, and extracts from sweet herbs and plants,' and there is nothing in our analysis contradictory to this. The solid matter we separated consists mainly of a reducing sugar (glucose), soap, soda, and borax, the whole being flavoured with cinnamon. Doubtless the sugar was originally added in the form of honey, and the soap would be the result of the union of the palm oil and the soda stated on the label of the bottle to be present." The whole article has the look of a thinly disguised advertisement, as the praise of the compound is loud and long.

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DENTAL REFLEXES.—Dr. Dunn, in the *Dental Practitioner* relates the case of a young lady, who in all respects was apparently in good health, with the exception that, for a period of nearly four years, she had been a victim of hemi-crania. She was a school teacher, and her sufferings were such as to necessitate her abandoning her school. Nights of insomnia and days of pain made life a burden. Many physicians had been consulted, and quarts of drugs had been taken. Diet was restricted, electricity used, sinapisms applied to the nape of the neck, and finally the spine was “fired”; but all to no purpose. She finally became Dr. Dunn’s patient. It had been his fortune in early days to have some tuition in dentistry, and to this he owed the success which attended the treatment of the case. The pain was so severe at times that, to use her own expression, it seemed as if she would go crazy. The pain involved the whole of the left side of the head, neck and upper arm, the strangest thing of all being that there was no pain in the jaw or teeth. By a process of exclusion and remembering the wide range of dental reflexes, he was prompted to examine her teeth—a thing which had not been done by any physician before—and there, in the buccal side of the third superior molar of the same side as the pain, was an enormous cavity—fully two-thirds of the crown being gone. An excavator plunged deeply into the cavity instantly brought on an attack of the pain; but the pain, strange to say, was not referred to the tooth. It was in the side of the head, neck and arm. The tooth was extracted, and thus ended the sufferings of four years.

A GENEROUS OFFER.—According to the *Medical Press*, an anonymous donor has announced that he is willing to contribute the sum of £10,000 towards the cost of founding a general hospital in South London, at the same time making suggestions as to the control and administration of such hospital. A committee has been formed to take this magnificent offer into consideration. We hope the conditions do not swamp the value of the gift.

AMBIDEXTERITY IN DENTISTRY.—Mr. H. Lake, L.D.S., in the *Dominion Dental Journal*, discusses this question, and comes to the conclusion that instead of being of use ambidexterity is a hindrance. Time is money to the dentist, and the time lost in selecting instruments, shifting positions, etc., would not suffice to recompense for the advantage gained by the use of the opposite hand. Again, the servant may make a good master, but the master never makes a good servant. The right hand of the operator is the directing, the motive hand. The left is the assistant. A gold filling is in progress. While the right hand is placing the pellets in position and guiding the mallet, the left is adjusting the rubber-dam, managing the saliva pump, holding the mouth mirror, etc.—a deal busier than the right hand, but still occupying a minor position. Now, let us change places. The left hand directs the work, and training and practice will insure a degree of success unsuspected, but no amount of will-power, practice or determination will enable the operator to perform with the right hand the work of assistance so admirably and yet involuntarily undertaken by the left. You may make the left hand a successful director, but never will the right occupy a subservient position. As one who has practised ambidexterity with the desire to benefit thereby, he advises leaving it alone, as the results are no reward for the time spent.

REMOVAL OF GREEN STAIN.—The *Pharmaceutical Journal* has started a dental column for those chemists who are also registered dentists. It recommends for the removal of green stains from children's teeth equal parts of cream of tartar and powdered pumice, applying by means of an orange stick or with a rubber cap on the engine. The teeth should afterwards be carefully burnished quite smooth, or else the stains are liable to re-occur. Cream of tartar, it says, is an excellent thing for cleaning the teeth when used by the dentist, but should not be recommended to the patient. Cream of tartar contains free acid quite capable of dissolving enamel. Hence the caution.

Review.

A System of Dental Surgery. By the late Sir John Tomes, F.R.S. Fourth Edition revised and enlarged by Charles S. Tomes, M.A., F.R.S. London: J. & A. Churchill, 1897.

We are glad to see this standard work perpetuated by a fourth edition. In the preface the author refers to the difficulties he has experienced in deciding what matters may be left out, and what should be retained and elaborated; most will, however agree with the wisdom of the conclusion expressed as follows:—"Whilst fully recognising the complete impossibility of teaching manipulative detail by word, and no less the impracticability of dealing with matters in a chapter, while each of them require an ample work for their description, I have thought it better to retain such points of manipulative detail as may be thought to in some measure involve or illustrate general principles, and not to attempt to do more."

Perhaps the most distinguishing feature of the work, as at present constituted, lies in the fact that the various opinions, methods, appliances, and materials are considered and dealt with by a recognised authority. The fairness with which the evidence for and against particular modes of practice is weighed, and the sound judgment evinced in the summing-up, make this a valuable book of reference to the general practitioner, especially when he is in trouble. Indeed, we know of no book which could be better relied upon in cases where legal proceedings were involved; and a practitioner who found he could quote Tomes' *Dental Surgery* in his favour would certainly have valuable expert testimony. Take, for instance, the following pronouncement upon the success or failure of one of the commonest of operations. "There are those who are disposed to regard the decay of a tooth which has been filled as the result of want of skill or of care in the operator; such an opinion is perfectly untenable, when the character of the operation is considered in connection with the tissues which are involved, and the various conditions under which disorganisation may be effected. The very fact that caries has appeared in a tooth demonstrates its pre-

disposition to disease; and a filled tooth is not better than the same tooth before it decayed, except in so far as the caries may have occurred at some spot specially weak, so that this having been cut out and the cavity filled, no other spot equally susceptible remains. This is notably the case in crown cavities in molar or bicuspid teeth, in which caries has occurred at the bottom of a pit or crevice. We can, for the time being, arrest the disorder and put the tooth back to the point whence it started, but it may reappear in some other part of the tooth, and may in fact commence a second time in the enamel and dentine in the immediate vicinity of the plug, which will then form part of the circumference of a new cavity. Such results will occasionally arise in the practice of those who use the utmost skill in their operations, and they will be seen still more frequently among the patients of those whose cry is infallibility. The ultimate success of an operation will in great part depend upon the skill with which it is performed, but it will not depend wholly upon the operator. There are other sources of failure than the assumed want of skill in operating, some of which are not under the control of the dental surgeon nor of the patient."

Apart, however, as a work of reference on emergency, this book will probably be read systematically by all students and practitioners who wish to keep themselves up to date. A new chapter is introduced on the Bacteriology of the Mouth, and the reader will find such interesting points discussed as the putrefaction of unexposed pulps, as well as the practical ones, such as Phosphate Cement linings, the use of Nitrate of Silver, Pulp-capping, and the host of every-day details.

We know of one teacher who is in the habit of telling his students that the chapter on Neuralgia is alone worth the price of the book.

To conclude our notice we extract a warning which is too much neglected by some. "For it is pressure which is one of the most frequent stumbling-blocks in the way of successful capping of presumably healthy pulps."

Abstracts of British & Foreign Journals.

SOME ESTABLISHED PRINCIPLES IN PROSTHETIC DENTISTRY.

By L. P. HASKELL, Chicago.

PLASTER IMPRESSIONS.

The more difficult the case of which to obtain an impression the greater the necessity for using plaster.

AN INVARIABLE RULE.

Where the cuspid teeth have been extracted a year there is necessity and room for wearing the plate higher, and the artificial gum fuller, than elsewhere, to restore the contour of lip.

VACUUM CAVITIES.

In full cases, upper permanent, there is no need of air-chambers or vacuum cavities, except in rare instances. This is asserted after thirty years non-use of them, having had every conceivable shape and condition of jaws to deal with, and in the heaviest continuous gum sets. Often they interfere with suction. In this connection it should be considered that the centre of the palate is hard and the only portion of the upper jaw that never changes from absorption or pressure. As the alveolar ridge is constantly liable to change (especially under rubber) gradually the plate rests and rocks on this hard centre. In metal plates, a thin "relief" of wax, the edges flush with the model, is needed in all cases, except in less than one per cent. where it is soft, and no change whatever is needed. This has been my invariable practice for thirty years, and the results are eminently satisfactory.

OILED SAND.

Its advantages are two-fold, viz. : When once prepared it can be used many times without re-oiling, thus saving time and annoyance. When moistened with water, if too wet or packed so hard the steam cannot escape, blow-holes are liable in the die. This never occurs with oiled sand. It should never be used with zinc, as that is poured so hot it burns the sand too much. To the objections sometimes made to the

"odour and soiling the hands," it may be suggested that these are discounted by the opening and handling of a vulcanite flask.

THE USE OF THE BLOW-PIPE.

It is strange, but true, that the blow-pipes furnished the dental profession from the earliest days to the present are simply jewellers' blow-pipes, and unfit for dentists' use.

The jeweller uses low-grade solders, and has no investment to contend with. The pipe is so small it has to be taken inside the lips, tiring the muscles.

The dentist with his high-grade solders and heavy investments needs a large blow-pipe, the mouth of which is pressed against the lips, so that the blowing is made easy; then with the larger orifice at the heat end a larger flame can be secured.

VULCANIZED RUBBER.

The most serious objections to the use of rubber for full upper dentures is its non-conductibility; the retention of undue heat, causing constant change in the process, so that in thousands of cases there is no ridge left, or only a ridge of thickened membrane. Dr. George Watt's theory was that the retention of undue heat did not cause additional absorption, but what was practically the same in results, prevented a replacement of lost tissue.

ALUMINUM FOR PLATES.

This makes an excellent cheap plate. To the objections sometimes made that it is acted on by a caustic solution of soda and is therefore unfit for use in the mouth, it might be said that the oral cavity does not contain a "caustic solution of soda" nor anything else that will deteriorate the metal. I have never seen the first evidence of such action in any plate after several years' use. As formerly reduced the metal contained little specs of iron which rusted, and holes resulted. The present metal is entirely free from any impurities. By the use of the "loop-punch" the rubber is firmly held to the plate.

Ohio Dental Journal.

TO REMOVE CEMENT.—A piece of wet pumice-stone will remove cement from the mixing slab with neatness and despatch.

Geo. M. C. Barnard, Dental Digest.

FIGHTING THE DENTISTS.

The last number of the *Journal of the British Dental Association* (September 15) contains a report of the annual meeting of that body, which was held at Dublin in August. In the Secretary's report for the year we find the following paragraph:—

The Business Committee has been engaged in correspondence with the Editor of *The Chemist and Druggist*, a trade journal of extensive circulation. The Editor was anxious that we should undertake a friendly case to test the supposed rights of chemists to practise as dentists, but as we were so far satisfied with our legal position, we had no inducement to respond to his challenge; and the subsequent decision in the case of the British Dental Association *v.* Jackson, a chemist, justified the position of the Committee.

It ought not to be necessary to inform a committee with so much experience of law as this one has that the Jackson case justifies nothing at all. We asked the British Dental Association to agree with us on a case to be submitted to the High Court to settle once for all our divergent views of the scope of the Dentists' Act. We are not surprised that the Association is not eager to bring the bold claims some of its officials have made to such a test. The Jackson case referred to was reported in this journal. Mr. Jackson is a chemist at Blackpool, who was summoned before the Magistrates on February 15 last. The following were the incriminating documents, exhibited in or in front of his shop:—"About the teeth consult Oliver Jackson; over 2,000 living testimonials"; "Single sets from 21s., complete sets 42s.; consult Oliver Jackson, chemist's shop opposite the Post Office"; "High-class dentistry in all its branches"; "Dental consulting room." Mr. Jackson seems to have been properly defended, but the Bench fined him 40s. and costs. The case was not carried any farther.

That case was not brought to our knowledge before it was heard, and we may say that it was a rather stronger one than we should care to undertake. We think the words "dentistry" and "dental" had better be avoided, though we decline to believe that they are in the least degree illegal. The Judges of the High Court simply mocked at the exactly analogous claim which was put before them in the veterinary-chemist

case in regard to the adjective "veterinary." What the Dentists' Act forbids is clear and definite. It is the assumption of the title "dentist" or anything which implies special qualification. Anybody else has a perfect right to perform all dental operations, and if he has that right he has an equal right to say that he does this in the most exact English at his command.

Editorial in the Chemist and Druggist.

A METHOD OF MAKING AND SHAPING METALLIC SEAMLESS TOOTH CROWNS.

By L. J. WHITE.

The first step in the principle is to select a band (from a set of twenty, which the manufacturer provides to those using the method,) to fit the root after it is prepared. The band is fitted to the root and is cut away from the labial and lingual side, and is left as high as occlusion will permit on the approximal side. The band is then filled full of wax, and the patient bites on the wax. The band is then removed and the wax is contoured with a spatula; a plaster matrix is then made; the crown is then swaged perfectly to the metallic tooth, and the metallic tooth is melted out, and the cervical margin only requires to be bevelled, leaving a finished crown. By this method the crown is absolutely perfect in fit, contour and occlusion, and is produced at an expense of very little more than the actual cost of the gold.

Stomatological Gazette.

DENTISTRY IN JAPAN.

By SEIMARO KUBOTA, Japanese Dentist, Tokio, Japan.

Dentistry in Japan is yet in its infancy as you will understand when I tell you that about fifteen years ago Japan held no regular dentist, but there were two or three students of medicine who practised dentistry as a sort of an accommodation to their patients. In 1884 the Imperial Japanese

Government established an Examining Board for Dental Practice, which meets twice a year, in April and October, and before which each candidate must present and pass the examination in the following studies: Chemistry, anatomy, physiology, pathology, operative dentistry, materia medica and therapeutics, and clinics. Each candidate must present his certificate indicating a study of at least five years preparatory to the work. One examining board meets at Tokio and another at Kioto. The first dental College in Japan was established in 1887 by Yutaka Kubota, my honoured father. It is still in progress and is called Tokio Shika Senmon Igasko—meaning Tokio Dental School.

Since 1887 two other dental schools have been established in Japan, one in 1890. by Dr. Takayama at Tokio, and one in 1894 by Dr. Kojima at Nagoya city. Tokio has two dental associations.

There has existed in Japan for several hundred years a primitive system of dentistry—a system whereby artificial plates were made of ivory or wood and finished in a few hours—as our people advance in education they prefer the modern dentistry and the old primitive dentists are fast losing their patients. It is true that Japanese dentists extract teeth with their fingers, but the teeth extracted are all deciduous teeth after the root has become absorbed. Since the introduction of the American forcep the extraction of teeth has been much easier for the dentist and less painful to the patient.

Ohio Dental Journal.

EXCISION OF INFERIOR MAXILLA

(Right Half) for Large Sarcoma involving the Bone, Digastric Space and Side of Neck.

Mr. Henry Gray Croly operated on a man, æt. 55, a resident in the country, who was admitted into Mr. Croly's ward a week before, suffering from a very large tumour which commenced by a "kernel" on the centre of the jaw about four months previously; no history of injury. The tumour had the usual deceptive fluctuating feel, and large veins ramified on its convexity; the patient otherwise looked the picture of health. Two days before the operation a vessel gave way on the dependent part of the growth, and the blood

flowed in a continuous stream, and was arrested by styptics and pressure. The patient was placed on the operation table with his shoulders raised, and chloroform given. Mr. Croly commenced his incision near the lobe of the ear and extended it along the jaw to the right of the symphysis. A second incision was made from the red margin of the lip extending under the jaw; a tooth being absent, the bone was divided at that point. The jaw was freed from the mouth, the condyle made to project and hooked forward, the external pterygoid divided at its insertion with a blunt-pointed scissors and the jaw removed. The periosteum was found to be involved and the bone bare and rough. The entire tumour was carefully removed by the fingers. The sheath containing the carotid artery and jugular vein was exposed, and some portion of the tumour was detached from the sheath of the vessels. The tongue (which was transfixed early in the operation with stout silk) was held forward by an assistant. There was no hæmorrhage trouble, the lip wound was joined by means of hare lip pins. The patient bore the operation well and swallowed liquids soon afterwards.

Medical Press.

ORTHOFORM, A NEW LOCAL ANÆSTHETIC.

By Professor A. EINHORN and Dr. R. HEINZ.

Under this name a new synthetic product related in constitution to cocaine has been introduced into use for the production of local anæsthesia, as the result of an extended enquiry into the cause of the anæsthetic action conducted by the authors. From the account given by those authorities orthoform appears to be a substance of great interest on account of its being without toxic character, but at the same time a powerful antiseptic and, consequently, well adapted for use in the treatment of wounds. Orthoform will be manufactured by the company which has taken over the business formerly carried on by Meister, Lucius, and Bruning at Höchst, in the neighbourhood of Frankfurt, and it appears likely to be an exception to the many evanescent synthetic products that are forgotten soon after being introduced.

Orthoform is described as a white, voluminous, crystalline powder, is not hygroscopic, melts at 120° C., slightly soluble

in water, and has on that account an advantage over all other anæsthetic agents that are known, inasmuch as it is but slowly absorbed in consequence of its sparing solubility, and thus a durable effect is produced. The crystallizable orthoform hydrochloride is readily soluble in water; it produces anæsthesia like the free ester, but as the solution has an acid reaction is it not always applicable.

The remarkable anæsthetic action of orthoform is manifested very decisively when occasion requires the tranquillisation of exposed nerve ends. The otherwise painful operation of transplanting living skin may be carried out under the influence of orthoform without any sensation. Orthoform has a remarkable effect upon burns, contusions, and painful abscesses, and it has been found very beneficial in the treatment of ulceration of the throat or stomach and in cancer. It is, moreover, so free from poisonous action that comparatively large quantities amounting to nearly two ounces may be applied in the course of a week for dusting wounded surfaces without any danger. Internally it has frequently been administered to the extent of from eight to fifteen grains daily.

Pharmaceutical Journal.

IMPACTED TOOTH PLATES.

At a recent meeting of the Clinical Society, Mr. G. H. Makins related a case of Œsophagotomy for the removal of an impacted tooth-plate in which cellular emphysema developed in the tissues of the neck although the pleura was not injured. The patient was a man, aged forty-eight years, and the plate, which was swallowed during sleep, had been in the gullet four days. The position of the plate having been determined by the use of the fluorescent screen the classical operation was done at the root of the neck on the left side. During its performance dilatation of the lower angle of the wound was followed by the distension of the loose tissue of the carotid sheath with air. Beyond this when the œsophagus was opened air passed in and out of the tube with the movements of respiration, and as primary union of the wound

did not occur, in consequence of the ulcerated condition of the gullet, gastric juice apparently found its way upwards, with the result of somewhat retarding the permanent closure of the wound. The first point was explained by the opening up of the subpleural tissue of the mediastinum and the entrance of air from without, which on expiration was driven into the tissues of the neck, and the second point by the patent condition of the gullet noted at the time of operation.

The President said that he had seen many instances in which foreign bodies after being swallowed had been arrested at the level of the cricoid cartilage. He recalled one case under the care of the late Sir William Savory in which a dental plate had been swallowed five or six days before. There was a good deal of emphysema in the neck, and diffuse cellulitis set up by the ulceration of the œsophagus. The patient died from acute blood poisoning, as in his experience most of these cases did if the plate had been impacted more than a day or two. He had seen air pass down into the anterior mediastinum outside the pleura when glands were being dissected out at the root of the neck, but the cases all did well.

Mr. Pearce Gould recalled a case at the Middlesex Hospital in which a tooth-plate had ulcerated through the pharynx and caused death from blood poisoning. It was most important to remember the extreme mortality connected with these cases. He remarked that Mr. Makins's case illustrated the extreme value of the Roentgen rays in detecting not only the position but the existence of the foreign body, as it was often most difficult to determine whether or not there was a foreign body in the œsophagus. He was aware of one case in which a man was supposed to have swallowed a tooth-plate. A probang was passed and the plate was supposed to have passed down into the stomach, but a subsequent examination showed that it had slipped up behind the soft palate. In Mr. Makin's case the escape of gastric juice was a more remarkable complication than the emphysema, and he inquired whether it was acid or contained peptones.

Mr. Makins, in reply said that he thought that the œsophagus was rarely found collapsed, at any rate in adults; and in flatulent conditions he thought that the cardiac orifice of the stomach might be patulous, and it was in this way that he explained the escape of gastric juice in his case. Unfortunately no attempt was made to analyse the fluid which

escaped until very small quantities were available, but the discharge had exactly the appearance of that which escapes from gastric fistulæ.

Lancet.

A PERSONAL EXPERIENCE OF MALIGNANT DISEASE OF THE LARYNX.

By C. FLEMING, L.R.C.P. & S. Ireland.

About the end of June, 1895, my friends noticed a certain amount of change in my voice—huskiness or weakness, they said. I spoke as if I had chronic “laryngeal catarrh.” I attributed it to getting heated whilst bicycling, and congestion of the throat following from the inhalation of the colder air. My voice became very gradually more muffled in tone; I had no other discomfort whatsoever, no pain, no tenderness on external pressure, no swelling, no glandular trouble, no difficulty in swallowing, in fact, up to the very last I felt in perfect health. Loss, or rather a husky condition of voice, was absolutely my only symptom. In November, 1895, as matters grew worse I consulted Dr. (now Sir Felix) Semon. After a thoroughly exhaustive examination he discovered a very small growth on my left vocal cord, no surrounding inflammatory or glandular mischief, and the character of the growth not determinable. He wished to see me in two months’ time. As I did not seem to get very much worse, I am sorry to say that I delayed my next visit for nearly five months; even then there was no definite diagnosis. In May, 1896, I made my next visit. Dr. Semon again thoroughly examined my throat, and expressed a wish that I should consult Dr. Butlin; I did so, but he was also unable to come to a conclusion as to the nature of the growth. The first week in July, 1896 (or as nearly as possible twelve months from the commencement of my symptoms), I again saw Dr. Semon. At this visit he advised an operation, at least of an exploratory character, but wished to have his opinion supported by another. Accordingly I called again on Mr. Butlin, who said, “If I were you I would have an operation.” I made up my mind at once. It was the first inkling I had given me that

the growth might be malignant and I knew that I must lose no time. I now come to a most important factor in my case—namely, the universally expressed opposition I had to encounter from friends—medical and otherwise—when I expressed my intention of submitting to an operation ; in fact, I must confess to sitting down to write for an appointment with a very eminent surgeon at their earnest solicitation. Happily my better judgment, or I should say, my thorough confidence, prevailed. I can now fully understand the difficulties the lay mind has to contend with before accepting the final verdict and the reason why so many valuable lives have been sacrificed through similar “friendly” advice and misguided persuasion. I placed myself unreservedly in the hands of Sir Felix Semon, and on July 21st, 1896, he performed his operation, tracheotomy, laryngotomy, and complete removal of the left vocal cord, together with a certain amount of healthy tissue. The operation lasted one and half hours. On the fourth day I sat up for an hour ; on the twelfth day I went down to Brighton for a few days before returning to my work ; and at the end of a fortnight the external wound had quite healed. Since then I have had no drawback, and my voice has wonderfully improved in tone and quality. The last examination, on July 29th, disclosed a most satisfactory condition, a well-marked cicatricial ridge having formed just as Sir Felix expected, and quite accounted for the improvement in voice. My age was forty-nine years last February. There is no family history of malignant disease. The following is a copy of Mr. Shattock’s microscopical examination : “The sections show typical squamous-celled carcinoma in an early stage.....Little horny transformation has taken place. I have made also horizontal sections to see how far the removal is microscopically complete. No cells of the growth reach the divided edge.”

Lancet.

HOW TO MAKE ONE’S OWN INSTRUMENTS.

By Dr. BUTLER.

With a little practice good forms may be secured with the hammer, that will need but little filing for final sharpening ; especially in most hand cutting instruments, such as chisel

and excavators, yet, if you wish to secure the very best cutting edge or points, an extra size of point should be left, to be ground away after it has been hardened and tempered. You may desire to have an instrument with an expanded end, this may be secured by holding the point in the flame, and giving it a few quick strokes with the hammer upon the end—this is termed upsetting.

Plugger points must be nicely finished up to shape before serrated, hardened or tempered, unless they are to be *smooth* points, which I prefer to grind down with the oil stone after tempering.

The serrating of plugger points requires skill and care ; you should have an engraver's stand to hold a magnifier. The jeweller's slotting or screw head file is a good form, they are about three and four inches long, and are of two grades of cut, and you should be careful to select one that is straight. They should be ground both edges on the same side, at a long or short bevel to a knife edge, that you may be able to cut the valleys with equal slope by bearing to the right or left, with the file cut sides, on straight surface points, whether it be in fine or coarse serrations. In starting the serrations, draw the file gently across the face of the plugger at right angles to it, giving equal distance to the cuts, then the cross cuts the same. If the face of the point be such as to require the teeth to rake or slope forward, the file cut side should be leaned toward the point of the instrument. Small points, and for pits and grooves, should have but one valley, or two, as a crucial cut.

These files may be first ground on a fine corundum stone, from the centre toward the edge, then finished on the Arkansas oil stone ; once prepared nicely they should not be used on other work. And if you want a nice free working point, the valleys should be carefully polished out after they have been tempered ; which may be done with a knife edged piece of clock spring, using diamantine or flower of corundum and oil.

Manufacturers put great stress on the superiority of stoned burs (which is well), but I have yet to see any such claim for serrated plugger points by them.

You will remember the caution given, not to over heat the steel at any stage of the forging.

Tempering is an acquired art, and cannot be told or given in any written description only in general terms ; one of the principal difficulties is where varying degrees of hardness or temper in the same tool or instrument is needed ; this being

the case in nearly all dental and surgical instruments, it is no wonder there are so many useless ones in the market however nicely formed.

It is a two-fold process, first the instrument must be carefully heated to a red heat, and quickly plunged into water. This may be termed the simple method to harden.

A pot of lead on the forge or gas furnace, is a convenient way to heat slender instruments for hardening, such as canal pluggers, etc. It is well to protect the surface to prevent oxidation while heating. This may be done by the use of fine soap, pulverized prussiate of potash, or the following mixture: Gum arabic, rye flour, cyanide of potassa, and charcoal flour, in a paste. Warm the instrument, then smear the point in the mixture, which not only protects the joint while heating, but the instrument will clean more readily for showing the development of colours in the process of tempering.

The point or blade of excavators and chisels should be grasped with heavy pliers to protect from heating, then with the blow-pipe direct a small flame upon the shank at the upper line of the hardness, carrying the colour toward the angle or blade to a blue, or high spring temper. Attempts have been made to illustrate these colours that give the varying degrees of hardness that is needed in different instruments: Extra hard, is grayish white; pale yellow, for chisels and heavy excavators; straw colour, face of pluggers and fine excavators, bringing the purple into the angle, or near the point, the heavier the point the higher the temper may be allowed. Plugger points must be at least a high spring to prevent bruising; burnishers, hard, unless they be quite thin or slender like canal pluggers, then a spring temper must be given them.

Some steel stands a higher temper than other—this can only be proven by a few trials of the stock. If you wish to blue the shaft of instruments, which gives them a very nice appearance, it may be done after the points are finished, and the shaft finished to a smooth bright surface, then wash the instrument clean, grasp the point well up the shank in lead pliers, made by bending the bar so as to make beaks to grasp the point, then pass the shaft through the flame, or lay it on a bar of heated iron, roll it over until a nice blue is developed, then cool in the air and you will have a nice looking instrument.

CAPPING EXPOSED OR NEARLY EXPOSED
PULPS.

By Dr. W. A. LEE, Allegheny, Pa.

First, I will describe my idea of a pulp cap. It must be a disinfectant, an antiseptic and antiphlogistic, and most important of all, a non-conductor of thermal changes. It should invariably fit closely and accurately the surface to be covered being at the same time firm and unyielding.

As a disinfectant I have found nothing better than pure beech-wood creosote.

As an antiseptic and antiphlogistic, iodoform has proved the best.

As a non-conductor capping material, I have found gum copal, dissolved in sulphuric ether, the most satisfactory.

In capping exposed or nearly exposed pulps, apply the rubber dam. If possible, open the cavity, so as to give a good view of the interior; remove all debris and softened dentine, being careful not to impinge on the pulp. Take the disinfectant (creosote), saturate the cavity with it and wipe dry. Iodoform is introduced, followed by the application of copal ether varnish, a little thicker than cream. This is applied with a small pellet of cotton and dried with warm air blasts. A number of coats may be applied if desired. When the tooth is not sensitive to a blast of cold air, it is sufficiently lined. If the exposure is large, always place a piece of asbestos paper, but to shape of the floor of the cavity, into the varnish before it hardens, pressing it down gently, then revarnish over the asbestos and dry. Then place a thin mixed paste of oxyphosphate of zinc in the cavity over the cap. This, however, should never be pressed or forced into place, for injury may and is almost certain to follow any compression of the pulp. The cement must set thoroughly before filling with either gold or amalgam. Besides being a non-conductor, and adapting itself perfectly to the surface covered, it protects the sensitive tissue from the irritant action of the phosphoric acid used with the cement. This is the best method of capping yet found the material being a non-conductor of heat and cold, soothing to the pulp, and a preventive of all inflammatory action.

Ohio Dental Journal.

NITRATE OF SILVER IN ROOT CANALS.

Dr. Charles D. Cheney, Hoboken, N.J., gives his experience with nitrate silver, as follows, in the *International*:

I have used it with satisfaction in ordinary cavities for a number of years, and during the period of canal use my satisfaction has been infinitely increased.

I may say I consider pulp-extirpation and canal-filling more scientific than any method of so-called pulp "capping," especially since silver nitrate makes the former operation practically successful and certain.

I have never seen any objectionable effects from its use in nerve-canals, or I believe I may say any "effects." The use of the nitrate when the pulp is but thinly protected by dentine is not to be tolerated, but I have not observed any irritation to the pericementum when the canal may have been large and the walls thin.

BLEACHING TEETH.

By Dr. H. T. HARVEY.

My mode of procedure is to first excavate the tooth from all decay, apply the rubber-dam to the tooth to be bleached, also to the ones approximating it upon either side. My object being to get the shade of the adjoining teeth, using them as a guide for the requisite colour to be attained, and to exclude all moisture of the mouth and render the cavity more accessible. I covered the approximating surface of the adjoining teeth, together with the tooth to be bleached, with a very thin coat of vaseline or white paraffin wax, which is transparent; I then cleanse the cavity with a 95 per cent. solution of alcohol, having previously cleansed the root canal and rendered it antiseptic, then apply aqua ammonia, and dry thoroughly, using a hot-air syringe, which proves most valuable in the vaporization of all moisture of the teeth. I then take a small platinum broach with a pledget of cotton or bibulous paper twisted thereon, and thoroughly saturate the tooth with 25 per cent. ethereal solution of pyrozone, allowing the greatest quantity to remain in the tooth possible. I then turn the hot-air blast upon the tooth, which rapidly vapourizes the pyrozone and causes it to permeate the canaliculi. This procedure is repeated until the tooth-structure

assumes its requisite whiteness or colour. Following the experiment of Drs. Westlake and W. J. Morton, as described in the *International Dental Journal* and *Dental Cosmos* for 1895, I tried the cataphoric applications with the pyrozone, using 25 per cent. ethereal solution, and found, with the galvanic current, I could attain the same results as with the hot air, and in about one-half the time.

I now use cataphoric applications quite generally in bleaching of teeth, believing I am able to even permeate with the pyrozone, aided with the cataphoric applications, to a greater depth than with hot air.

As pyrozone is an ethereal solution, the ether permeates the canaliculi and absorbs, or thoroughly transforms, the protoplasmic matter, and kills all germs therein.

The minimum amount of time required by me to bleach a tooth, a lateral incisor, inky-black in colour, which tooth I bleached in ten minutes to the requisite whiteness; in fact, one shade whiter, allowing for retrocedence.

The manufacturers have made a great improvement in pyrozone in the last two years, and now produce a medicinal aqueous solution, together with a 5 per cent. and 25 per cent. ethereal solution. The 5 per cent. ethereal solution can be used for bleaching purposes, but it requires much more time; one can evaporate a 25 per cent. solution to any solution, if they do not desire as strong a solution as the 25 per cent.

In the discussion which followed, Dr. Ray said, My experience in getting discolouration out of an old amalgam filling, which might have come under your observation, is that I never can remove it; in fact, the chemists themselves who manufacture it claim it will not take away a metal discolouration, and I have found that to be the case. There is, once in a while, a case where there is an amalgam discolouration, where they have had to put it in to save the tooth in patients that were not accessible to a good dentist, and generally you can remove that with your excavator, so that you can get a very good-looking tooth. In fact, it would be a great improvement—anything would be an improvement over an old amalgam filling in a front tooth.

My way of proceeding is to thoroughly clean out the tooth, remove all of the soft matter of the dentine. I have always treated these teeth and got them first in a healthy condition before I bleach them. I remove the decay and open the roots nicely—probably up two-thirds of the way—making it perfectly safe above the gum, so that no discolouration would ever follow afterward from that, and I do not believe it will

where it is thoroughly bleached out and the tooth is properly filled with cement. I do not believe it can. I generally commence with a three per cent. solution of pyrozone, because I think the caustic effects of five or twenty-five per cent. would hinder a little the action. The three per cent. is an acrid solution, and I like it better on that account. I commence with that and follow it up with a five per cent. and end up with a twenty-five per cent. solution. When I first commenced to use it, I used a cold blast, having no other accessible, and I realized after awhile that I could produce better results from it by having, at least, the temperature of the tooth, or even warmer than that, and now I get as much heat as the patient can stand, and produce a great deal quicker results.

Dental Register.

BROKEN INSTRUMENT REMOVED FROM ROOT CANAL.

Dr. B. H. Catching, gives his method in the *Dental Review*:—

“The head of a Gates-Glidden drill was broken off in the root canal of a superior lateral incisor, about half way up. To remove it the canal was much enlarged to the broken piece. A four sided, sharp pointed drill was made from the broken instrument. A small hole was drilled by the side of the obstruction. Into the hole a Donaldson canal cleaner, repeatedly dipped in 75 per cent. sulphuric acid was worked back and forth, with lateral pressure, which removed tooth substance from around the broken piece. A forcible discharge of water from a hypodermic syringe into the canal brought the piece out.”

Ohio Dental Journal.

TO POLISH SCRATCHES FROM MOUTH MIRRORS.

Dr. M. J. E. Moore, of Allegheny, uses a medium sized felt wheel on the lathe, and wet pumice. Use considerable pressure and plenty of pumice, being careful, however, not to generate heat by the too long application without fresh application of pumice. You will be astonished at the result. All scratches and marks made by corundum stones, etc., on the mirrors, may thus be entirely obliterated.

Ohio Dental Journal.

Dental News.

THE DENTISTS' ACT.—IMPORTANT PROSECUTION IN LICHFIELD.

At the Lichfield Police Court, Edwin Benjamin Morgan, of Nechells, Birmingham, and Tamworth Street, Lichfield, was summoned for that in the parish of St. Mary he did unlawfully, by a certain false pretence, obtain from Mrs. Gumley, a widow, Birmingham Road, Lichfield, 7s., with intent to cheat and defraud. There was a second summons against the defendant, that he unlawfully, wilfully, and falsely, took and used the name of dentist. Mr. T. G. Tyler, of Birmingham, appeared for the prosecution, and Mr. W. S. Pritchett, instructed by Messrs. Coley and Coley, of Birmingham, for the defendant.

Mr. Tyler observed that he appeared for the prosecution, and he was instructed by Mrs. Gumley. Mrs. Gumley's daughter was suffering with her teeth, and she was anxious that she should get relief, and went with her on the 24th of September to the premises in Tamworth Street, at which the defendant attended, and where she believed that he practised as a dentist. She was shown up to the defendant's room, and the first question she asked was "Are you the dentist, please?" The defendant said "Yes." Then she said that she wanted her daughter's teeth stopped. Her daughter was then put in a revolving chair, and the defendant proceeded to put some dressing into the teeth. When this was completed she paid him 3s. 6d. and arranged to take her daughter on the following Friday and pay the remaining 3s. 6d. On the Tuesday following the dressing came out, and it struck Mrs. Gumley that the operation had been somewhat clumsily performed. On the Friday, therefore, when she saw him she asked if he was Mr. Morgan, the dentist, or the assistant, and Mr. Morgan replied, "I am Mr. Morgan, the dentist," and said, "Why did you ask?" She then told him it was because the dressing had come out. Mr. Morgan then stopped the teeth, and she paid the balance of 3s. 6d. Now the Bench would hear from the daughter that that particular filling came out on the following Sunday, and that the operation was so clumsily done on the next occasion that she had to go to another dentist. Now the Dentists' Act of 1878 was passed

with a view of protecting persons who wished to be treated by surgical operation from being treated by incompetent persons. This Act provided that no person should be entitled to use the title of dentist, or describe himself as a dentist unless he was duly registered and his name placed in the Dentist's Register, and the fact that his name did not appear in the Register was evidence that he was not registered.

Fanny Jane Gumley deposed: I am a widow and live at 11, Birmingham Road, Lichfield. On the 24th of September I took my daughter Eva to the premises in Tamworth Street, about her teeth. I saw defendant in his room. When I saw him I asked if he were Mr. Morgan, the dentist, and he said, "Yes." I said "I want my daughter's tooth stopped." I said one tooth at first. The defendant then put my daughter in the revolving chair and examined her teeth. The defendant said that two wanted stopping. He then put something in the tooth and I asked him what the charge was. He said 2s. 6d., 3s. 6d., and 5s., but that he could not warrant the 2s. 6d. I selected to have the stopping at 3s. 6d. I had only 4s. with me at the time, and I gave him 3s. 6d., and made an arrangement to go on the following Friday, and to pay him the balance. During the following week my daughter told me something about her teeth, and I again saw the defendant on the following Friday and asked him whether he was Mr. Morgan, the dentist, or the assistant. He said, "Why do you ask?" I said I thought that perhaps he might be the assistant. Then he said, "I am Mr. Morgan, the dentist." Upon that my daughter seated herself in the chair and he filled the two teeth. I paid 3s. 6d. I employed him because I thought he was much cheaper, but I relied upon his being a dentist. I have seen him advertised as a dentist. I asked him if he was a dentist as soon as I got into the room and in consequence of what he told me I gave him instructions.

Mr. Pritchett: Don't you know that Mr. Morgan has been practising as a dentist for the past seven or eight years?

Witness: Yes, my niece had some teeth.

Mr. Pritchett: Therefore you knew that he was a dentist before you went to him?

Witness: Yes.

Mr. Pritchett: Then all you wanted to know was whether he was Mr. Morgan?

Witness: Yes.

Mr. Pritchett: To be sure of his identity?

Witness: Yes.

Mr. Pritchett: You never heard of the Dentists' Act?

Witness: No. I understood he must be registered, but that was not what I wanted to know when I spoke to him.

Mr. Pritchett: Your real complaint is that he has not done his work properly.

Witness: Yes.

Mr. Pritchett: Why did you bring him to a criminal court? Why did you not take him to the County Court?

Witness: My daughter was suffering much pain and I was advised to take this course.

Mr. Pritchett: By whom?

Witness: Mr. Corner.

Mr. Tyler: If he had said I am Mr. Morgan, but I am not a dentist, would you have employed him?

Witness: No, certainly not.

Eva Gumley, daughter of the last witness, also gave evidence. She believed her mother said to Mr. Morgan, "Are you Mr. Morgan, the dentist," and that the defendant replied "Yes." Her two teeth were dressed and her mother paid 3s. 6d. on account, and arranged to come on the following Friday. On the following Tuesday witness swallowed the dressing, and she made a communication to her mother. She knew that her mother said "Are you Mr. Morgan, the dentist, or are you the assistant?" The defendant replied "I am Mr. Morgan, the dentist." Mr. Morgan asked her why she put the question and her mother said "I thought you were the assistant, because the dressing came out."

Mr. Tyler then put in the Dentists' Register and read an extract from the Act which showed that absence of the name from the Register could be accepted as evidence.

This being the case for the prosecution, Mr. Pritchard addressed the Court for the defence. A more preposterous prosecution he never heard of. This was a criminal charge brought against a most respectable man who had practised for seven or eight years. In order to constitute a charge of this description three things must be proved. It must be made out that the statement relied upon was untrue; secondly, that it influenced the person to pay the money; and thirdly, that it was made with the intention to defraud, and these points had not been made out. The question was put "Are you Mr. Morgan, the dentist?" and it was put to settle the question of his identity and not with regard to his qualifications. She wanted to know whether it was the same person

and the object was not to find out whether he was a registered dentist. The object of the Act was to prevent persons intimating to the public either by advertisement or otherwise that they were practitioners registered under the Act when they were not registered. In this case Mr. Morgan merely answered the question put to him and as a matter of fact he had practised as a dentist without ever representing himself to be a dentist under the Act. If he had done so he would have been liable. The question was whether they were going to send the defendant for trial for a criminal offence.

The Mayor said the Bench thought that there was not sufficient evidence to show that it was a criminal offence and the charge of false pretences would be dismissed.

The second summons—that the defendant used the name of dentist—was then heard.

Mr. Tyler observed that in this case the matter rested on an entirely different foundation. Under section 3 of the Act it was provided that no person should be entitled to take, or use the name or title of dentist without being registered, and anyone doing so would be liable upon conviction to a fine of £20. The Act had been passed for the protection of the public and to ensure that persons who described themselves as dentists should be possessed of a reasonable amount of skill. It was for the Bench to say whether they were satisfied on the evidence that he did take and use the title of dentist. If they were satisfied that he did then there would be no answer to the case, and it would be for the magistrates to say what penalty they would inflict.

Mrs. Gumley was then recalled and the evidence she had given was read over. In reply to Mr. Pritchett she said that a Mr. Corner advised her to take out the two summonses.

The evidence of the daughter was also read over.

Mr. Pritchett, in behalf of the defendant, submitted that no offence had been committed. The Act was passed to protect dentists duly registered under the Act and to prevent people practising to lead people to suppose that they were registered. It did not prohibit the practice of dentistry by persons who were not registered. The only thing the Act did was to make it illegal for a person to hold himself out to the world as a registered dentist when he was not registered under the Act. Did the defendant make any such statement as would lead persons to infer that he was a registered dentist? If he made it it was only inferentially; and he did not volunteer the statement. It was not pretended in fact that

he did so. It was quite evident indeed that the question was put simply to ascertain his identity. He submitted that the defendant did not use the word dentist at all, but that if he did use it he did not use it within the meaning of the Act. The Act implied the public use of the word; the holding out to the public the intimation that he was a dentist. It was not intended to apply to an isolated case of a man who allowed himself to be called a dentist in private to a single individual. To bring the defendant within the Act there must be some public usage of the name or title of dentist or dental practitioner. In this case there had been none.

Mr. George Birch, magistrate, pointed out that that could scarcely be so, inasmuch as under the amending Act, passed in the following year, it was provided that not only the Council of the Dental Association, but private persons might institute prosecutions for offences under the Act.

Mr. Joseph Williams, dentist, Birmingham, said that he had known Mr. Morgan for some time and knew that he was a practical dentist. In reply to a question by Mr. Tyler, witness said that he knew Mr. Morgan as a practical worker for the profession. He made artificial teeth.

The Bench said they considered that the case was fully proved and fined defendant two guineas and costs.

Mr. Pritchett asked the Bench to state a special case on the point of law for a higher court, and they consented.

Correspondence.

[The Editor does not hold himself responsible for the opinions expressed by correspondents.]

CHLOROFORM ANÆSTHESIA FOR TOOTH EXTRACTION.

To the Editor of the "British Journal of Dental Science."

SIR,—A most important subject is opened by Mr. Glassington's letter in your issue of the 1st inst., and to your courtesy and kindness the profession are distinctly indebted. The question as to what anæsthetic should be given in tooth-extraction is one on which there are marked divergences of opinion, but that "our leading anæsthetists are unanimous on the exclusion of chloroform pure and simple" is undoubtedly true. It would be indeed strange if our thoughtful dentists and anæsthetists were indifferent to the almost weekly records of "Deaths under Chloroform," and these sometimes in a Dentist's Consulting Room. It is obviously a matter of secondary importance to decide to the satisfaction of all the exact *rationale* of how death occurs. The first step is to save

our patient's life, and chloroform should *never* be given alone, and only on exceptional occasions in an anæsthetic mixture.

The day may come when with better teaching a more scientific knowledge of anæsthesia and the modes by which it opens the gate for processes to pass along which end in death, the qualified medical man will indeed be qualified to give chloroform with a minimum of risk.

But to-day we are confronted by two facts that no one can gainsay, viz., that deaths under chloroform in cases of tooth-extraction are alarmingly frequent, whereas under Nitrous Oxide the mortality is practically nil. And this contrast is the more remarkable when one knows that the latter drug has been, and is given in thousands of cases by men who have had but scant opportunity of perfecting themselves in its administration. Whether then the death from Chloroform be due to the upright position, or to the direct action on the heart muscle of a protoplasmic poison, or to a paralysis acting peripherally or centrally on the respiratory centre, or to a disturbance in the specialised rhythm of respiration, or to any other cause, the fact remains that while we have so safe an anæsthetic as Nitrous Oxide, Chloroform anæsthesia is unwarrantably dangerous to life in cases of tooth-extraction.

It is possible that the family doctor accustomed to witness the tolerance of lying-in women to chloroform, develops a familiarity with the drug which makes him bold to administer it under all circumstances and in all conditions. This rash trust has been rudely shaken in many cases, and probably before medical men in general learn the lesson these fatal cases teach, more lives must be sacrificed, more deaths under chloroform must occur in the dentists' chair, and more inquests with the usual verdict. But the doctor who administers chloroform for a dental operation must, if he be worthy of his calling, ask himself whether he is justified in the face of such fearful odds in continuing such a practice, especially when Nitrous Oxide either alone or coupled with Oxygen or Ether meets with comparative safety the necessities of any such case, no matter how long the operation may be.

Yours faithfully,

J. MAUGHAN.

To Correspondents.

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THE EMPLOYMENT OF CHLOROFORM FOR DENTAL OPERATIONS.

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(Concluded from page 971.)

Again as several of the deaths occurred before any tooth extraction had taken place, no reflex paralysis could in such cases occur. Either these patients died from fear and independently of the anæsthetic, or the fatality was the direct result of the administration of the chloroform. Against the former view is the fact that persons faint, it is true enough, under the influence of strong emotion, even when no chloroform is given, and quite irrespective of the existence of cardiac disease. I have been told of several patients, to whom I was to give an anæsthetic, who had habitually fainted when a tooth was being filled. I knew a noted tiger hunter of almost gigantic physique and iron nerve, who went into a dead faint on a speculum being introduced into his nostrils. But such persons are exceptional, and death is almost, if not quite, unknown in connection with such fainting fits. Anæmic women, especially when neurotic, faint in this way, but they always come to readily enough when Liq. Ammon.

Fort. fumes are allowed to stimulate the mucous membrane of the nostrils. When ether or nitrous oxide is given for dental operations, such attacks of syncope are so very rare as to be almost out of parallel with chloroform, and yet there is no apparent reason for persons being less the subjects of fear or shock under the former anæsthetics than when under chloroform. It must then be admitted that it is at least probable that chloroform does play a part in all deaths which occur when the patient is partially or wholly under its influence. If chloroform then kills, how does it do so, and when does it apparently show an election unfavourable to dental patients, who being as a rule healthy and robust, should *cæteris paribus* escape the dread visitation of chloroform syncope?

The older views about chloroform killing through the heart or respiration are at present not admitted without considerable amplification and reservation. If we take a strand of striped involuntary muscular fibre connected with a nervous ganglion by a nerve we have in its simplest form the mechanism of the automatism of the heart. We know for example, that a frog's heart will beat for hours even when severed from all its connections and removed from the body. But the heart besides its intrinsic nervous mechanism is controlled by the central nervous system by means of a series of nerves which for our present purpose need not be particularized, suffice it to say its rhythm may be slowed (depressed or quickened by acceleration) or stopped (inhibited) for one or more beats. The heart, moreover, in order to perform its duties must possess and retain its elasticity (resiliency), it must be capable of not only expanding to admit the inrush of blood during diastole, but must be as capable of squeezing out its contents by its elastic recoil in systole. To do this the heart muscle must be duly supplied with nutrition, the quantity as well as the quality of this nutrition will depend

upon whether the blood has been duly oxygenated in the capillaries of the lungs as well as whether the mechanism of the circulation is efficiently working. Again, unlike the batrachian, the mammal heart requires to be not only in structural connection with the central nervous system, but actually depends upon it for impulses which shall enable it to perform its work and meet any sudden or unusual call made by the organism. But the nervous tissue comprising this governing body is peculiarly liable to derangement unless the due supply of blood is brought to it, and as it is placed at a mechanical disadvantage owing to its position being so much above the pumping station—the heart—it is peculiarly liable to be deprived of its blood if anything goes wrong with the circulation. The venous blood readily flows down hill, but the arterial blood not filling its place, the brain becomes bloodless, and all the vital functions fall into abeyance. A pre-existing anæmia—which means all the tissues are on short rations, or semi-starved—would predispose to this danger. One word must be said about the main condition for efficient blood circulation. The pump action of the heart with the elastic closing power of the arteries is useless unless there exists an area in which the resistance is such that the intermittent pumping of the heart is converted into, a steady flow through the tissues. Thus is maintained blood pressure if any of the forces whose resultant is the normal blood pressure are at fault, the tissues cease to receive their vitalising blood supply, and the organism dies wholly, or its animation is suspended until the blood-stream again flows through its channels.

The part which the lungs play in the maintenance of life under chloroform is a double one. Non-oxygenated blood cannot flow through the pulmonary circulation, so in the event of air or oxygen failing to enter the lungs, the circulation therein must come to a stand still in a short time, while

any condition which interfered with the due working of the medullary centres which are concerned with the carrying out the regular machinery of respiration, might produce asphyxia, and secondary failure of circulation.

The possible sources of danger under chloroform may then be summarised as (1) a failure of the heart from direct action upon its fibres or intrinsic contractile mechanism, leading to impediment and final cessation of the central pumping action of that organ; (2) cessation of circulation through vaso-motor paralysis leading to dilatation of the arteries, and unrestricted flow through the capillaries into the veins. Since the venous system is enormously more capacious than the arterial, all the blood of the body will, if this vaso-motor paralysis occur, find its way into the veins and fail ever to return to the heart or nervous system. Such a state of affairs is seen in the cadaver in which the arteries are empty and the veins full; (3) the nervous centres or channels of communication between them and the viscera and peripheral muscular system, the regulated action of which maintain circulation and respiration.

It has been shown by the German observers, Thiem, Fischer, and Ungar, that prolonged inhalation of chloroform produces a change in the muscular system, including the involuntary muscle of the heart, which if not actually a fatty degeneration, is at least closely akin to it, while the now generally accepted results of McWilliam's experiments show that even a brief inhalation of chloroform leads to a dilatation of all the cavities of the heart. That observer found the muscular tissue of the heart became abnormally distended, but up to a certain point was able to contract and propel the blood forwards into the arteries. At a certain point, that is, when a definite quantity of chloroform had entered the circulation, the resiliency of the heart muscle was lost. It was, in fact, like an india rubber ball, the material

of which had perished, it lost its power of contraction, and so could no longer propel the blood forwards into the arterial system. In the human subject, even if so extreme a loss of contractibility does not take place, the heart muscle would be placed at a disadvantage, and the circulation thereby impeded. And it must be remembered that all the heart cavities were in McWilliam's experiments found to be distended. Gaskell and Shore* lay great stress upon this weakening of the heart's action, and believe it is that rather than any effect upon the walls of the vessels which leads to the failure of circulation under chloroform. Without attempting to traverse Brunton's views upon this point, it may be well to state that he likewise contends that the heart is directly affected, although he believes this only takes place when asphyxial conditions co-exist. The careful communications of Leonard Hill made to the Royal Society carry us a step farther. He and Mr. Barnard† have shown "that chloroform rapidly abolishes both the vaso-motor tone, and the action of the respiratory pump." "In man a condition of deficient vaso-motor tone, (such as may be brought about by the inhalation of chloroform combined with an atonic condition of the abdominal wall or patulous abdomen, must in the erect posture lead to a deficient circulation and anæmia of the brain." Waller‡ again experimenting upon the nervous tissues under chloroform has demonstrated in a most beautiful series of experiments, that the vapour of chloroform will not only instantly abolish the power of nervous tissue to conduct impulses, but will, if the vapour be either applied repeatedly, or its strength be increased, abolish the nerve's excitability altogether. In other words will kill the nerve. It must

* Report on the Physiological Action of Chloroform, 1893.

† Physiological Society, 1895, and *Journal of Physiology*, vol. xxi., No. 4 & 5.

‡ Lectures on Animal Electricity, Royal Institution of Great Britain, 1897, "Brain;" 1896 and 1897, "Anæsthetics, Narcotics, etc." and *Journal of Physiology*, vol. viii.

then appeal to the intelligence of all who have followed the trend of recent research work, that chloroform, valuable as it is, is yet capable of destroying life in several ways. Nor can we after seeing Leonard Hill's tracings close our eyes to the fact that to place a person in a sitting posture, and then to give him chloroform is to put the individual to the utmost possible risk of his life. The anæsthetic removes the check which the vaso-motor tone of the vascular system imposes to prevent the blood falling by force of gravity into the dependent splanchnic veins and venous system of the abdomen and so allows the brain to become emptied of blood and the arterial system depleted. As a result we get failure of the nervous centres which regulate the vital processes, while the heart already at a disadvantage gradually comes to a stand still, being wholly unable to cope with the altered conditions of the circulation.

In order, however, to make these points clearer it will be well to analyse the cases of deaths cited above, and the more recent ones, and as far as possible explain them by the light of our present knowledge of the actions exerted by chloroform upon the tissues of the body. The patients were all seated, chloroform was given in a slipshod fashion, and in such a way that at any moment an overdose was possible. The vaso-motor system became paralyzed, and the blood drained into the abdomen and dependent parts. The heart muscle itself being deprived of blood, rapidly lost its power of contraction, a result still further brought about by the action of the chloroform upon the tissues of the viscus. Hence resuscitative measures were applied in vain. The evidence certainly compels us to two conclusions, (1) in no case is it justifiable to give chloroform for ordinary dental operations, and (2) if chloroform has to be given in dental practice, it should be given only to persons lying in the horizontal or Trendelenberg posture, and by those who are fully alive to its dangers and to their responsibilities.

NECROSIS.*

By Mr. H. E. LAURENCE.

The subject of Necrosis being a very wide one, I propose to deal more particularly with that part of it which is of most interest to the dentist, firstly making a general sketch of the subject, afterwards dealing with each point more closely.

Necrosis does not constitute a disease in itself, but is the result of previous inflammatory trouble, which by terminating in suppuration, has caused a separation of the periosteum from the bone to a greater or less extent. The lower jaw is more frequently attacked than the upper, on account of its exposed position, smaller blood supply, and compact tissue. The extent of the disease varies according to the extent, situation, and nature of the inflammation. The outer alveolar plate is usually attacked first.

The symptoms in the early stages resemble periostitis, the gums are swollen and tender, abscesses form, which on bursting leave sinuses, the teeth become very loose, and pus exudes from around their necks. The skin over the affected part is red, shiny, and tense, and the breath is foul. It may be mistaken for Cancrum Oris, Epithelioma, or Sarcoma, and a careful diagnosis should be made to distinguish between these.

Treatment. In the early stages, any local cause should be removed, local depletion by scarification, leeches, and hot fomentations, should be used, and a good purge administered, and Mr. Heath recommends large doses of Pot. Iod. adding opium if painful.

If destruction of the bone is probable, free incisions should

* Read before the Students' Society, National Dental Hospital.

be made to relieve tension, and all loose teeth should be removed.

If pus has formed, it should be evacuated, and antiseptic and deodorising mouth-washes freely used. If all these attempts fail, and the bone becomes necrosed, no attempt should be made to remove it until quite loose, though if it is held slightly by the soft parts, it may be liberated by the use of the scalpel. The sequestrum should not be allowed to remain longer than is necessary, as there is danger of burrowing abscesses forming, which might seriously complicate matters. Mr. Cattlin mentions a case in which the sequestrum was removed below the clavicle. English surgeons generally wait until the sheath of new bone has formed, to preserve the shape, but Continental surgeons usually interfere at an early date. The sequestrum should always be removed from the interior of the mouth, to prevent disfigurement, and if several sinuses exist they should be united. If the whole body of the jaw is necrosed it will be necessary to divide it at the symphysis before attempting its removal.

Causes. The chief causes may be summed up under the following headings:—I. Dental Irritation; II. Chemical Agents; III. Exanthemata; IV. Syphilis; V. Injury; VI. Specific Inflammations; VII. Malignant diseases; VIII. Idiopathic.

I. *Necrosis from Dental Irritation.* Under this heading are included, 1. Necrosis of the teeth, partial and complete; 2. Necrosis of the Alveolus and body of jaw.

1. *Necrosis of Teeth.* A tooth is commonly said to be "dead" when its pulp has lost its vitality, but this term is strictly speaking, incorrect, because it still derives nourishment from its periodontal membrane. When the pulp is dead and the periodontal membrane has also lost its connection with the tooth, the latter is said to be "necrosed."

Partial Necrosis (i.) Death of pulp. The causes of this

are many, and include inflammation due to exposure from caries, action of such drugs as arsenic, mechanical violence such as a blow severing the vascular connection at the apical foramen, or fracturing the tooth, inflammation caused by atmospheric changes, structural consolidation, degeneration, etc.

The *Treatment* consists in removing the dead pulp, thoroughly cleansing the pulp cavity and canals, and suitably filling them. If this is carefully performed, the tooth may remain in use for many years; if not, complications such as inflammation of the periodontal membrane and alveolar abscess may occur.

In teeth of this description there is usually an amount of discolouration, which may be hardly perceptible, or may become almost livid purple, due to the escape of decomposed hæmatin of the blood into the dentinal tubes. This may be remedied either by bleaching, or by cutting away as much as possible of the discoloured tissue and filling with a light osteoplastic material.

(2.) *Death of the Cementum.* Among the causes may be mentioned the spreading of inflammation from an affected pulp to the periodontal membrane, or from the inflamed edge of the gum caused by the sharp edge of a cavity or filling, or from the presence of a foreign body, such as a ligature or tartar, or from constitutional causes, such as Pyorrhœa Alveolaris.

The tooth usually becomes loose and the gum recedes, the patient complains of pain caused by thermal changes, pus may ooze up between the gum and the tooth, or may escape by a fistulous opening; there is no discolouration. In 2 or 3-rooted teeth, only 1 or 2 roots may become necrosed, this condition causing great pain owing to the roughened surface of the necrosed roots being pressed against the inflamed periodontal members.

Treatment. Removal of cause, followed by the use of antiseptics or astringents, when the symptoms usually subside.

In partially necrosed teeth of this description, the periodontal membrane is liable to become the seat of renewed activity resulting either in the absorption of the cementum or the addition of new tissue to it. In the former case the tooth becomes loosened and falls out, in the latter the tooth usually retains its connection through the new tissue.

A completely necrosed tooth is a combination of the two former, and being, as it were, a foreign body, is sooner or later cast off, either by acute or chronic means. In the former, violent inflammation is set up in all the surrounding parts, the tooth becomes elongated in its socket, pus is secreted, and the tooth falls out. In the latter, the parts become indurated, sinuses form, and all the surrounding parts become thickened, the tooth gets darker in colour, and unless radical treatment is adopted, the disease will involve the bone, the tooth and its alveolus being thrown off as a common sequestrum. Another method is seen in old age,—that of senile absorption, in which the alveolus is gradually absorbed, the tooth finally falling out for want of support.

2. *Necrosis of the Alveolus* and body of jaw, is the result of inflammation of the periodontal membrane (caused by presence of septic matter, incautious use of As. ZnCl. &c.) which, if not treated, may lead to the formation of an alveolar abscess, or it may spread to the alveolus itself, both terminating in necrosis. There are also constitutional causes. It may be limited to one socket or may attack several, a general diffused alveolar periostitis being usually the cause in the latter case. The treatment consists in local depletion, or if an abscess has formed, evacuation of the pus. Owing to the close relationship of M₂ with the ascending ramus in some lower jaws, the eruption of the wisdom tooth is often im-

peded and inflammation is set up, and unless M2 is extracted, to allow room for the wisdom to come forward, necrosis of the angle of the jaw is liable to occur. Some advise extraction of the unerupted wisdom, but that is a matter of choice. A serious result of this is the formation of abscesses, which burrow widely about the angle of the jaw, leading to scarring and permanent deformity.

II. *Necrosis from Chemical Agents.* Under this heading I include Mercury, Phosphorus, Arsenic, Zinc Chloride, and other caustics.

Arsenic. During the process of devitalising, arsenic is liable to escape on to the gum, if the cavity is not properly sealed, leading to hyperæmia followed by dilation of the vessels, thrombosis, and gangrene. The part should be syringed repeatedly, while the local application of sesquioxide of iron is said to be useful. ZnCl. has the same effect as arsenic, but acts more slowly.

Mercurial Necrosis. This variety of disease is less common than formerly, owing to the introduction of a new chemical process for the manufacture of looking-glasses. It may be due to the administration of mercury to salivate syphilitic patients, or of teething powders during childhood.

Symptoms are metallic taste in the mouth, followed by inflammation of the mucous membrane, the tongue is swollen and tooth indented, and the gums are swollen around the necks of the teeth. The periodontal membrane becomes affected, pus is secreted and the teeth become loose and fall out. Tremulousness of the hands and arms is noticeable, and the patient gets thin and sallow. The alveolar process or any part of the jaw may be involved.

Treatment. Removal of cause, free scarification of gums and administration of Pot. Iod. The catarrhal condition of the mouth should be treated with a two per cent. solution of KClO_3 mouthwash.

Phosphorus Necrosis. This variety of disease dates from the introduction of the lucifer match, (1846, Dr. Wilks). Some consider it to consist in blood poisoning, but the majority agree that it is a local affection, the constitutional symptoms being consecutive. The fumes of phosphorus are found to have no effect on sound gums and teeth, only acting on raw surfaces such as the socket of a recently extracted tooth. The lower jaw is more often attacked than the upper.

Symptoms. The patient complains of toothache, at first intermittent, then continuous; pus exudes from the sockets of the loosened teeth, the gums are swollen, tender, and detached from the alveolus, the face is very much swollen. Sinuses form externally and the general health is impaired. Salivation is very marked, accompanied by vomiting, fever, loss of appetite, and derangement of the bowels. The necrosed bone projects into the mouth and may lead to gangrene of the cheeks and lips. These cases usually terminate fatally, though the patient may recover with considerable loss of bone. The pus which is secreted shows a great tendency to burrow in the lower jaw, sinuses often riddling the neck, and in the upper encroaching on the brain.

Treatment. The objects in view are to circumscribe the disease as much as possible, hasten the death and separation, and support the patient. This may be done, roughly speaking, by removing external irritation, stuffing the wounds with antiseptic cotton, and the use of generous diet. The separation of the sequestrum occupies from seven to nine months. The sequestrum is peculiar in having what is known as the pumice-stone deposit on it. This is formed from the periosteum, and is adherent to the dead bone, its Haversian canals are very large, they run at right angles to the general direction of the bone, and interlace with one another. It is laminated, brittle and powdery. No repair tissue is formed in the upper jaw.

III. *Exanthematous Necrosis*. This disease follows on the exanthemata, most commonly after scarlet fever, then measles, small-pox and typhoid. It usually occurs in children about five or six years old, and about the fourth and fifth week of convalescence. It may attack both jaws, and is usually symmetrical, but varies greatly in extent. Mr. Salter mentions twelve cases, of which the least severe resulted in the loss of one temporary molar and its alveolus, while the most severe resulted in the loss of the right nasal process, most of the palatine process, and the body of the maxilla, with the alveoli and loculi of the temporary incisors, canine and molars, and their immature permanent successors. He says that this form of necrosis is essentially the same as that of phosphorus, i.e. it is the result of the application of a specific poison to the vascular parts of the teeth, but differs in that the poison is generated within the individual.

The symptoms are not very marked, the gums are stripped from the alveolus, pus oozes from the edge of the gum, the breath is fœtid, and the temperature slightly raised. The stripping takes place vertically and does not spread laterally.

Treatment. Nothing can be done beyond the use of anti-septic and deodorant mouthwashes, as the extent of the disease is indicated from the first, and cannot be curtailed.

IV. *Syphilitic Necrosis*. This constitutional disease usually attacks the upper jaw, either the alveolus, or the hard palate, chiefly the latter. When it attacks the alveolus the symptoms are slight suppuration around the necks of the teeth, which become loose. The suppuration increases both in the amount of secretion, and the depth to which it enters among the roots of the teeth, causing the whole region to become boggy and necrosed. The disease is usually in the tertiary stage when it attacks the hard palate, and it commences as a gumma.

The treatment is constitutional, but touching the ulcers

with HgNO_3 , AgNO_3 , or equal parts of iodine and creasote, with free incision, is of advantage. The part must be protected from contact with the tongue and food by a plate so constructed as not to cause pressure on the hole itself, as that is liable to enlarge it.

V. *Necrosis from Injuries.* Unskilful extraction often causes necrosis by fracturing the alveolus, or even the body of the jaw. Tones says that in such cases the necrotic conditions may have been developed previously to and quite independent of the removal of the tooth. Gunshot wounds and kicks are other causes. The treatment is general.

VI. *Specific Inflammations* such as Ulcerative Stomatitis, and Cancrum Oris. The former occurs chiefly in children, and in the upper jaw. There is little pain, the odour of the breath being usually the first point noticed. The ulceration commences at the gum margin, and gradually spreads, denuding the alveolus and leading to necrosis of the teeth. If not checked extensive necrosis, and even death may occur. The disease is contagious.

Treatment. KClO_3 given internally, painting ulceration with AgNO_3 , removal of all loose teeth, and KClO_3 gargle.

Cancrum Oris differs only in degree, and in that it is not amenable to treatment with KClO_3 .

VII. *Malignant Diseases* such as Sarcoma and Epithelioma. A sarcoma of the gum is, briefly speaking, a mulberry like epulis. It occurs chiefly in young people, is quick in growth, and has its origin in the bone itself. The treatment consists in the free removal of the growth and adjacent bone. An epithelioma is due to constant irritation, such as the ragged edge of a tooth or badly fitting denture. The disease is insidious. The ulceration is characterised by its everted edges and indurated base.

Treatment. Free excision of diseased parts. Its early recognition is important.

VIII. *Idiopathic*. This convenient term is applied to those cases having no apparent cause, therefore the treatment is general.

Repair. In the upper jaw there is usually no attempt at repair, especially in adult cases, though in children a tough fibrous tissue may be formed, filling up the gap.

In the lower jaw the repair may be very complete. The new bone is deposited like a sheath around the dead bone. When the latter is removed, granulations form in the cavity, these are converted into a fibrous mass and finally into bone. It may happen that the body only of the jaw is necrosed, the alveolus and teeth escaping through the latter usually become loose and have to be removed. Mr. Salter says that this repair tissue is only temporary, though the application of a denture will lengthen its existence.

A recent sequestrum is of a dirty yellowish white colour, its margins are ragged and have a worm-eaten appearance, especially at the detached surface.

This, gentlemen, brings me to the end of my paper, and all that there remains for me to do is to thank you for your very kind attention.

AN IMPROVED METHOD FOR MAKING GOLD CROWNS.

By H. C. BRAUN.

Having practised the method I am about to describe for a considerable period with success, I have no hesitation in submitting it to the Profession for their consideration, and shall be pleased to answer any queries respecting it, with the Editor's kind permission in future numbers.

The primary operation of preparing and dressing the root or tooth having been performed, I apply an anæsthetic pencil to the gum, then take a Levett's matrix of the nearest depth, and draw it up tightly round the tooth, using a foot-shaped burnisher to press it home ; the loose end of the matrix (which should be on the lingual or palatine side) is bent at right angles to prevent slipping. It is then removed, and partly filled with soft wax, replaced in situ, and the patient requested to gently close the mouth, to obtain the bite of the occluding teeth. All this can easily be done in about three minutes ; the crown can now be made in the Laboratory at leisure.

The next step is to cast a plaster model and bite of the matrix, in a White's Crown Articulator, to which I add a set nut, which fixes the screw. Now soften and remove the wax, and slip off the matrix ; should the join be prominent, it is advisable to pare it off. Make the collar in 22 carat gold, and stamp the cusps up in very thin 24 carat. Adjust the cap to the collar close the articulator, to obtain perfect occlusion and while in this position, smooth the cap edges on the collar, remove from the model, and solder in the crown tongs.

The crown can now be stiffened, by filling the cusps with solder. It is then ready for trimming up and polishing, and should be as perfect in fit, as if it had been made entirely in the mouth.

As it is not possible to drive the matrix well down below the gingival margin, it is advisable to raise the bite about one mm. and festoon the edge, before the crown is fixed.

WHITE GUTTA-PERCHA.—Dr. Max Sichel dissolves gutta-percha in chloroform, and lets it stand for a week in a solution of chloride of lime. He then filters and exposes to the sun for a week. He says one will then have a pure white gutta-percha.

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ADAPTING OPERATIONS.

Judging from the articles which often appear in Dental Journals on both sides of the Atlantic, one might sometimes feel justified in believing that it is the custom of some operators to work on hard, fast and inelastic lines. They have a fixed routine of treatment which is carried through on all alike. They affirm that their way is the best way, and consequently the rubber dam is applied, sensitive dentine is burred and excavated, gold is inserted for hours at a time, and pulps are destroyed and extracted by immediate methods without due consideration of the various idiosyncrasies and susceptibilities of the different patients operated upon.

It is often insisted upon that we are living in a degenerate age. It is said—and we believe with truth—that our nerves are more susceptible, our pleasures more refined and intense, and our pains more acute than formerly. Whether we should shrink from pain, if inevitable, nowadays more than our forefathers did in pre-anæsthetic days, we know not, but knowing as we do that we can be plunged in unconsciousness, we take advantage of the lethal drug and thank Science for her beneficent discoveries. But in many of the operations in dental Surgery, some of which are enumerated above, no anæsthetic has as yet been discovered which will produce a satisfactory local anæsthesia for a considerable period. Cataphoresis is as yet on its trial and the results published have been so conflicting that we cannot say as yet that the problem is nearly solved. Therefore “if the mountain does not come to Mahomet, Mahomet must go to the mountain”; if we find that the temperament of our

patient is such that a considerable amount of pain cannot be borne, we contend that our operations should be modified, so that we should do the greatest amount of good with the least amount of harm. In the case of a strong healthy adult whose nerves are well balanced and whose organs are sound, these remarks do not apply. We welcome these cases, as we can perform our best work for them with the utmost satisfaction to both parties. But when we have to deal with young children, delicate subjects of both sexes, pregnant women, those who have been the subjects of severe illness or shock, and the aged, it is our duty to do all in our power to make their visit—always a more or less disagreeable one—as little painful as possible. Irreparable injury is often done to children by rough or painful usage on the occasion of a visit to the dentist. The youthful mind is at its most impressionable stage, while the reasoning faculties are but rudimentary. The result of pain or terror are such as to prevent the child ever repeating the visit if it can be avoided, the consequence being that the teeth are neglected at one of the most important periods of life. Delicate subjects should not be subjected to prolonged or severe operations. Idiosyncrasies should not be regarded with contempt, but treated with sympathy and seriousness, absurd though we may think them. We have in mind the case of a young man, a gutta percha stopping in whose tooth was finished off with chloroform. On smelling the drug the patient started, turned pale and nearly fainted. It turned out on enquiry, that some time previously he had received a charge of shot in his body and was put under chloroform many times for the purpose of extracting the shot. The shock and the subsequent operations had made such a powerful impression upon his mind that he could not bear the smell of the drug. The request of a patient to “put something in the tooth to deaden the pain” of excavation should never be disregarded, as the moral effect is a great assistance.

In the case of pregnant women work of a temporary character is advisable, and instructions should be given for a future visit. Extractions in these cases are inadvisable,

but if necessary, gas may be administered and is preferable to extraction without it. Gas should also be given to extract bad temporary teeth and permanent molars in children. It may also be given for excavating sensitive dentine in exceptionally sensitive and neurotic cases. Plastic fillings may often be inserted instead of gold in these sensitive subjects, the occasional renewal of the cement being more than counterbalanced in the patient's mind by the painlessness of the operation. We may do a great deal in educating our patients to endure and appreciate more elaborate work, but our knowledge of human nature must be our guide as to those who can and those who cannot stand such education. On the other hand we must be on our guard against the purely cowardly who cry before they are hurt, and who would be the first to condemn us and our work if it should appear to their judgment to be unsatisfactory. Lastly, the personality of the operator has much to do with the amount of discomfort a patient will endure. This should make us charitable when viewing the work of a brother practitioner, as we do not and cannot know all the factors in the case. Our duty at least is clear, to do the best for our patient under the circumstances connected with each individual case, and the operations should be adapted accordingly.

A NEW USE FOR THE DENTIST.—According to the *Pall Mall Gazette*, the uses of a dentist were brought out after a somewhat unusual manner in Paris lately. In that gay capital, as is well known, the burglar does not bother about the shades of night when an opportunity for the exercise of his profession chances to present itself. Such an opportunity had presented itself, on a fourth floor, to two members of the craft, who had walked upstairs in broad daylight to look for it. They reckoned the flat was quite at their disposal, the proprietor, as they had ascertained, being out of town. So they entered unceremoniously, and startled a housemaid. She shrieked; they fled. She fetched a policeman. He lay low. Presently one of the burglars made a stealthy rush

down from the attic storey. When the policeman collared him, he was ringing at the dentist's bell on the floor below, pretending he had the toothache. While his companion, to elude pursuit had already enlisted the services of the same dentist, and was esconced in the chair. Their ingenuity, however, was of no avail, and they were ignominiously taken to goal.

FALSE TEETH STATISTICS. — About 4,000,000 of false teeth are manufactured in the United States every year, and it has been calculated that the dentists in that country pack away about a ton of gold and three times that amount of silver, and platinum into the teeth of their patients, the value of the metal being estimated at 1,000,000 dols. This is the statement in *New York Current Literature*. After a glance at the headline one is tempted to enquire which is false, the teeth or the statistics? We all know the tabulation of lies—white lies, black lies and statistics.

A DOG WITH FALSE TEETH. The *Westminster Gazette* says that "the Kennel Club Show Committee have done a serious injustice to one of the attractions lately on view at the Crystal Palace. The first entry in the first class for Schipperkes, in the show catalogue reads: "Not for competition, 1,249, Mr. E. Moseley. *Myn Duivel*. Pedigree unknown. Not for Sale." This gives the visitor little idea of the eminent position which *Myn Duivel* holds in the "doggy" world. The little Schipperke is elderley, and neither particularly handsome nor blessed with "points." But he has what no other dog in the world possesses—a set of false teeth. His owner, Mr. Moseley, is a dentist, and made the teeth with evident satisfaction both to himself and *Myn Duivel*. A bite with a set of false teeth would surely not be able to convey hydrophobia, so could not Mr. Long consider the advisability of substituting false teeth for muzzles?"

Query: Which did the owner wish to exhibit, the dog or the teeth?

AN EXCITABLE DENTIST.—At the Leeds City Police Court Vincent Robert Morley, dentist, was summoned for assaulting and using threats towards Mr. J. A. Lowther, B.A., head master of St. George's Schools, Leeds. It was stated that on October 4th the defendant's boy, who is a Scholar at the school, fell whilst playing in the schoolyard, and hurt his head. He went home, but subsequently returned with his father, who became excited, assaulted the complainant, and threatened to further injure him. For the assault defendant was fined 20s. and costs, and for the other offence he was bound over in his own recognisances of £25 to keep the peace. From the perusal of the newspaper report there would seem a want of logic in Mr. Morley's action, but perhaps he has his own theory on the subject of counter-irritation.

“DENTISTS” AND CRIMINAL PROSECUTIONS.—It is satisfactory to note that most of the so-called “dentists” whose names figure in police reports have not their names inscribed in the Dentists' Register, and ought not therefore to be described as such. We give one or two recent examples. Horace Wallace, aged 32, a dental surgeon, of The Drapery, Northampton, was charged on remand with embezzling several sums of money belonging to his employer, Mr. Wallack Cartwright Mallam, dentist, of 195, Pentonville-road. It seems that Wallace had been in the prosecutor's service for eighteen months, and was entrusted with the management of a branch establishment at Pentonville-road. It was found that in no less than a dozen cases, had the prisoner received patients and appropriated the money to his own use. He had also falsified his employer's books, and in order to avoid detection had put false addresses against names of patients in the address-book. This had protected the prisoner for some time, and it was only owing to the ingenuity of the police that the mode of procedure was discovered. His counsel said his client pleaded guilty. It was true he appropriated several sums of money, and had visited some of the prosecutor's patients as his own. It was a sad case, inasmuch as

the prisoner had only recently married. Under the circumstances he asked the Magistrate to deal with the prisoner under the First Offenders' Act. The Magistrate said that it did not seem to him to be a case which should be dealt with under the First Offenders' Act. It was not a case in which a poor man had yielded to a sudden temptation, but it was a carefully planned robbery, elaborately carried out. The prisoner was sentenced to gaol for two months.

NOT ON THE REGISTER.—Another case is one of forgery by a "Dentist." Edward Frank Biolelli, 29, a dentist, pleaded Guilty to forging a cheque for £107, the property of his employer, Randolph Llewellyn Pollard, with intent to defraud. The prisoner for the last 15 months had been an assistant to the prosecutor at Woolwich. His salary was £2 10s. per week. He stole the cheque from Mr. Pollard's cash-book, and having forged the signature of his employer, he obtained the money from the Woolwich branch of the London and Provincial Bank. He spent all the money in the course of two or three weeks. The prisoner was sentenced to nine months' hard labour.

NOT ON THE REGISTER.—At Plymouth County Court, Wandesford Fowler, described as a "dentist," in George-street, Plymouth, was before his Honour Judge Edge by order of the Registrar in Bankruptcy. The Official Receiver said the bankrupt appeared on August 25th. The Registrar made an order for the filing of a cash account for the twelve months previous to the receiving order, and adjourned the hearing of the case until September 21st. On that date an account had not been filed, but there was a kind of account not verified or supported in any way left with him. That account was utterly useless, a mere statement of money he said he had paid and sums received and not checked. The Registrar then made an order that the order made on August 25th should be complied with forthwith. Debtor then impatiently replied he was not going to waste his time by pre-

paring such an account. His Honour said that Mr. Fowler would probably eat his Christmas dinner in prison. He would not tolerate his conduct, not only to the officials of the Court, but to a creditor who came to look on, and whom he had threatened to assault. If Mr. Fowler talked about punching creditors' heads, the sooner he was in prison and kept there the better; and he would go unless he was careful.

BORIC ACID DENTIFRICE.—Boric Acid is a strong antiseptic, and the following makes a good dentifrice. If the guaiacum is too astringent it may be omitted.

Boric Acid (finely powdered)	...	40 grains.
Chlorate of Potassium	...	$\frac{1}{2}$ drachm.
Powdered guaiacum	...	20 grains.
Prepared Chalk	...	1 drachm.
Powdered Carbonate of Magnesia	to	1 oz.
Otto of Roses	..	$\frac{1}{2}$ drop.

Mix.

A TOOTH IN THE INFERIOR TURBINATED BONE.—Dr. G. W. Graham relates the following case: One night, about eighteen months before, while playing in the moonlight with her companions, a child ran against a projecting hinge, from which an old gate had fallen, and knocked out one of her front teeth, and otherwise injured her mouth, which bled profusely. A physician was summoned who checked the hæmorrhage, and in a few days the wound had healed, minus the tooth, which was never found, although diligent search was made for it the next morning.

An examination of the nose with head-mirror showed one nostril to be in a normal condition, while the other was filled with a polypoid growth, beneath which there constantly oozed a watery liquid in such quantity as to require frequent use of the handkerchief. After removing the excrescence in the usual way the tooth which had so mysteriously disappeared was discovered firmly embedded in the inferior turbinated bone. The girl had struck the hinge with such

force as to drive the tooth entirely through the superior maxilla and bury it in the bone, and so thoroughly had it united with the parts that it was impossible to remove it with forceps without doing further injury to the nose. It was at length loosened by means of the dental engine.

DENTISTS AND BOARDS OF GUARDIANS.—A recommendation to appoint a dentist to attend to the teeth of the children was made by the Warren Farm Schools Visiting Committee to the Brighton Guardians. The Committee advised that the position be given for one year to Mr. Arthur Read, L.D.S., of 12, Old-steine, on the terms he had consented to accept, namely, £26 5s. Mr. J. O. Thomas, in moving the recommendation, said that there would be extra charges for materials, but, after the first year, it was not expected that these would come to more than £5 a year. Mr. Councillor Swift considered that the expenditure was unnecessary, and that the Medical Officer of the Schools ought to attend to the children's teeth. He moved that the matter be referred back to the Committee for further consideration. Mr. Councillor Galliers seconded. Mr. T. Rose said that Dr. Ross was Medical Officer of both Workhouse and Schools, and he could not be expected to undertake, in addition to his present duties, the supervision of the teeth of two hundred children. The dentist would visit the Schools once a week until he had got the teeth of the children into proper order, and then he would visit once a month to see that their teeth were kept in that condition. One dentist, who was approached on the subject, demanded fifty guineas, while another would not undertake the duties at all. It was a most important matter that the teeth of the children should be seen to. Some one had said, "Oh, sharper than a serpent's fang it is to have a toothless child." Mr. Councillor Dunk supported the amendment on the ground that the fee for the dentist ought to be an inclusive one, to prevent the piling up of extras. At the same time, he said, the Medical Officer should not be asked to look after the children's teeth. It must be done by a specialist. The amendment was defeated by twelve votes to eleven, and the recommendation was passed.

CONSERVATIVE DENTISTRY IN SCHOOLS.—Commenting on the above the *British Medical Journal* remarks, "The Brighton Board of Guardians have had under their consideration, and discussed at considerable length, the advisability of making a special dental appointment in connection with one of their schools, and we are glad to see that they have decided to engage the services of a fully qualified dentist, whose duty it will be to examine the children periodically, and carry out the necessary treatment. The Brighton Guardians have in this respect set an example which we trust will be followed by others. By the regulation of the Local Government Board it is no doubt the duty of the medical officer of the school to give his attention to diseased teeth when requested to do so, and when it appears necessary, to extract them. We do not, however, understand that it is any part of his duty to undertake "stopping," or to engage in any form of mechanical dentistry, and we apprehend that very few medical officers would care to undertake any such duty, even if they felt qualified for it, which would, we think, be quite exceptional. There can be but little doubt that in the past far too many children's teeth have been lost entirely for want of proper and sufficiently early attention. The appointment of a dentist just made by the Brighton Guardians has been strenuously advocated for some years past by Dr. Ross, the medical officer of the school, and he is to be congratulated upon his success in having brought about so desirable a change."

EXTIRPATION OF THE GASSERIAN GANGLION FOR NEURALGIA.—Mugnai (*Il Policlinico*, September 1st, 1897) records the case of a woman, aged 52, suffering from incurable neuralgia of the right superior maxillary nerve. In October, 1895, this nerve was excised by the author. For about fourteen months the patient was entirely free from pain; it then returned not only in the second division of the fifth, but also in the first and third. The author decided to resect the Gasserian ganglion; this was done on January 14th, 1897, by the Krause-Hartley method, viz, temporary

excision of the squamous portion of the temporal bone. The operation lasted an hour and three-quarters, and although much collapsed at the time the patient made a rapid recovery, and when seen six months after the operation, had no return of the pain, and was better in every way. Sensation had returned over the area of the second and third division of the fifth nerve. This dangerous and difficult operation has now been performed with success a good many times as a *dernier ressort*.

THE PATHOGENY OF ERRATIC ERUPTION OF WISDOM TEETH.—M. Moty read a communication before the Academy of Medicine of Paris, stating that in wisdom teeth extracted on account of erratic eruption there was always found at the level of their fangs a soft material, composed of epithelial cells, which could be washed out by a stream of water. M. Moty concludes that the various accidents in the eruption of the wisdom teeth are due to the inclusion of aberrant epithelial masses which represent rudimentary wisdom teeth. The term "vicious evolution," which is habitually applied to this class of accidents is erroneous, and ought to be replaced by that of "supplementary dermoid of the wisdom teeth." This is a theory which we think requires corroboration before being accepted fully.

THE OUT-PATIENT SYSTEM.—At a meeting of the Council of the Hospital Sunday Fund on October 27th, a report was presented, says the *British Medical Journal*, from the Committee of Distribution, dealing with the question of the abuse of the out-patient departments, and recommending that the governing bodies of hospitals should be advised to retain the services of efficient persons to make enquiries respecting persons attending out-patient departments. After some discussion, the following resolution, moved by the Chairman of the meeting, Sir Sydney Waterlow, and seconded by Sir William Broadbent, was adopted: That this Council recommends that at the next meeting of the constituents in December the following clause be added to the laws of the constitu-

tion: "That where a hospital having an out-patient department has appointed a special and efficient officer for detecting any abuse in that department, it shall be regarded by the Distribution Committee as an important factor in determining the merits." This is a step towards the remedy of what has become a grave scandal.

CASE OF ACUTE NECROSIS OF ALVEOLAR PROCESS OF SUPERIOR MAXILLA IN A BABY TWO DAYS AFTER BIRTH.

—Mr. Frederic C. Wood writing to the *British Medical Journal*, calls attention to the following remarkable case. On September 25th, he attended Mrs. B., aged 28, in her first confinement, which was quite normal, though somewhat tedious. Two days after birth the nurse called his attention to the baby, who had not yet opened its eyes. There was slight chemosis of both eyelids, which he thought might have been due to injury during birth. The next day he was requested to examine its mouth, and on doing so he found the alveolar process of the left superior maxilla much swollen. The day following there was extensive sloughing, and after having removed the slough with a pair of forceps, he extracted two pieces of bone. The child progressed favourably under treatment until the twelfth day, when an erysipelatous eruption appeared on the abdomen, subsequently spreading to the genitals and nates. The baby died on the fifteenth day, apparently from sapræmia. We have never heard of necrosis coming on so soon after birth. Curiously enough, there was no history of syphilis, struma, etc.

PROFESSIONAL TRADES-UNIONISM.—The *Birmingham Daily Post*, commenting on the recent case of an unregistered man at Lichfield, says:—"Professional trades-unionism appears to be quite as jealous and combative where its interests are assailed as that which is devised for the benefit of the industrial classes, though its methods are different. When unionist workmen have to be supported against non-unionists the usual recipe is a strike and picketing. When the difficulty has reference to unlicensed medical or surgical

practitioners the proceedings take the more orderly, but not less effective form of a police court prosecution, such as that which took place at Lichfield recently. The defendant in this case was an unregistered dentist named Morgan, residing in Birmingham, but publicly practising in Lichfield, and possibly other towns in the district, in defiance of the provisions of the Dentists' Act, by which the privilege is restricted to such as are duly licensed or registered. The proceedings took the form of a double-barrelled prosecution, by the first of which the offender was charged with obtaining money by false pretences—the pretence, of course, being that he was a qualified dentist, while the second charged him with violating the provision of the Dentists' Act in publicly practising as a dentist without being registered. It was not shown that he had represented himself to his patient as a registered dental practitioner, and he had merely replied in the affirmative to the lady's enquiry whether he was "Mr. Morgan, the dentist." The charge of false pretences therefore was dismissed, but with respect to the other charge of having violated the provisions of the Dentists' Act, the circumstances were clearly different. It was indeed, argued for the defence that the Act was not intended to prohibit the practise of dentistry by unregistered persons, but only to prevent them from posing as registered dentists; but the contention was overruled by the magistrates, who thought the charge clearly proved, and fined the defendant two guineas and costs. On the application of the defendant, however, the Bench consented to state a special case on the point of law for the decision of a higher court, so that it would be premature at present to assume that no one but a registered dentist is entitled under any circumstances to share in the emoluments of the profession." The charge of false pretences is notoriously difficult to prove, but as regards the other point, the law in England has been upheld in so many cases now, that this one is not at all likely to upset former decisions.

THE BIRMINGHAM DENTAL SCHOOL.—It was at Queen's College that the Dental Department was established. In 1881 a dental branch associated with the Medical Faculty opened

its doors with the modest total of two students. The department could not hope quickly to secure a large membership roll, and cramped and crippled in its resources, as it was, in Queen's College, progress was necessarily slow. Good work, however, was accomplished in early days, and skilled dentists were sent forth, but it was not until the transfer to Mason College, and the isolation of the department in a large measure that its expansion was particularly marked. In subsequent years—till the transfer—the numbers remained very small. In 1882, however, the School claimed eight students, and the number has gone on steadily increasing until the present year, when, we believe, there have been 24 new entries, more than double that of any other year. Since the opening of the school in 1881, 83 students have entered the Dental Faculty; 51 have qualified, and there are 32 still in attendance at the College, 15 of them electing to take the double curriculum in order to qualify for the diplomas of L.D.S. and M.R.C.S. The teaching of dentistry is undertaken by the College, acting in association with the Birmingham Dental Hospital and the General and Queen's Hospitals, so that students are enabled to fully qualify themselves for the dental diploma of the Royal Colleges. A large conservancy room has recently been erected with accommodation for 20 chairs and a mechanical room is also about to be opened. At the General and Queen's Hospitals the study of general surgery and medicine is pursued under the direction of the Birmingham Clinical Board. The Dental Department at Mason College is splendidly equipped, the museum, thanks very largely to the efforts of Mr. Humphreys and Mr. Dencer Whittles, containing an interesting and valuable collection of skulls, an excellent series of coloured models showing irregularities of teeth and jaws, and specimens illustrating the various stages of mechanical dentistry. The walls are decorated with a number of drawings of microscopic sections, and photo-micrographs, and recently there has been added to the museum a series of skulls illustrating the comparative odontology of British mammals. The students have a flourishing society of their own, its object being the furtherance of dental science among its members by the reading and discussion of papers.

Abstracts of British & Foreign Journals.

APICAL AMPUTATION OF ROOTS.

By E. B. LODGE, D.D.S., Cleveland, O.

Believing that the operation of amputating the apex of the root is a procedure of the utmost value in a certain well selected class of cases, the writer has chosen to deal with this subject. There are several distinct conditions where we would think this operation the best, if not the only satisfactory treatment. (1) In chronic alveolar abscess where, owing to sanguinary calculus at the apex of the root, the ordinary treatment is ineffective. (2) In cases where the root canal has been filled, entombing septic matter at the apex in sufficient quantity to cause a condition of chronic irritation at the apical space, or in cases where irritation comes from a mechanical cause, as for example, a broken nerve-broach protruding through the apical foramen. (3) In event of exostosis at the end of the root. (4) In cases where the presence of the pulp nodules will not permit the action of arsenious acid.

Having decided that the operation is indicated in a certain case, and having produced local anæsthesia by some method reliable in the operator's hands, remove the overlying gum tissue sufficiently to expose the process at the point where it is to be operated on. There are three methods of doing this: (1) By the use of an escharotic, as 95 per cent. carbolic acid, applying it at the proper point and carefully scraping away the coagulated tissue, then reapplying the agent and again scraping until the process is exposed; or, (2) by using a tubular lancet in the engine, cutting a circular incision, the tissue lying within being then dissected away, bringing the alveolar process to view; or (3) by the use of the three line or Y-incision, the flaps being turned back. This method the writer ordinarily prefers.

Now, having the process exposed over the apex of the root, select a Younger trephine of suitable size for the case in hand, and with the engine pass it carefully through the external plate of bone and then on through the apex of the root. The included tissue will perhaps come away with the instrument, but if it does not, it can easily be removed with some form of excavator. If it is desired, from the nature of

the diseased condition, to remove more than simply the apical portion, then instead of placing the trephine over the apex of the root, place it nearer the crown of the tooth and pass it through the root. After thus removing a section of the root, the apex may be dislodged by the use of a suitable instrument. All that is now left to be done is to take a fissure bur of the proper size and remove any remaining spicule of root or bone and also any necrosed tissue that may not have been included within the trephine. Then syringe out the cavity with tepid water, containing some good antiseptic, as phenol-sodique. This will remove any remaining fragments of tooth or bone and render the cavity aseptic.

If the root has not been filled, now is the time for that operation. The filling material may be forced through the root and the excess removed, and the end of the root left smooth. The wound should now be filled with a tent of cotton saturated in phenol-sodique or other antiseptic, and the operation is completed. The dressing should be renewed the following day and for a few succeeding days, until it has become sufficiently filled with granulations to make it no longer needful. The wound usually heals kindly and in a short time, leaving the tooth in good condition.

The operation is not difficult to perform and the writer has employed it successfully, even upon the molar teeth. Strict asepsis should, of course, at all times be observed. The writer regards apical amputation as an excellent measure to resort to where other means of saving the tooth offer little hope, and he is confident that no one is better prepared to do this than the well-equipped dental surgeon.

Ohio Dental Journal.

THE DANGERS OF CYCLING.

As so many dentists cycle, and as some have already paid the death penalty, we think that the following editorial from the *Medical Press* may be of interest.

The cyclists' accident and death rolls have for some time past risen to an alarming extent. Not a week passes without its list of serious and fatal accidents, many of them, we make bold to say, of an entirely preventible nature. Just

as in driving, the cautious coachman who looks ahead, who slackens speed at crossings and downhill, who avoids "tight corners" and "close shaves" in passing other vehicles, and who has a check rein always ready for emergency is the man who brings down his chances of accident to the irreducible minimum, much the same principles are followed by the careful cyclist, to the preservation not only of his own neck but also of the life and limb of other people. For, as all who run may read, the number of unfortunate citizens who are nowadays maimed and killed by cyclists is something appalling. Indeed, this fact alone is sufficient to warrant some common plan of regulation of cycle riders by the police. So far as one can judge, the greater part of the evil arises from the vagaries of two classes, first, the expert "scorcher," and secondly, the inexperienced novice. Of the two the inexperienced rider is probably the more dangerous both to himself and to others. From the point of view of the peaceful pedestrian, there is a good deal to be said in favour of registering, numbering, and taxing cycles. It would also be a good plan if it were possible to insist on every rider proving his competency before being allowed to add to the already manifold dangers of the Queen's highway.

THE ORBICULARIS ORIS MUSCLE AND FACIAL EXPRESSION.

By Dr. W. C. BARRETT.

The orbicularis oris is the common meeting-ground of all the muscles of the facial expression. Fibres from each and every one of them communicate, either primarily or secondarily, with the true orbicular fibres. Even the muscular portion of such a distant one as the occipito-frontalis has its means of communication, and from the clavicle to the coronal suture there is a functional union of all the expressive muscles of the face and head. The mingling of the fibres of all these muscles makes the structure of the orbicularis very complex. Muscles like the depressors and the levators, the filaments of which are arranged at right angles to the margins of the lips, crossing it, give vertical fibres. Those of the buccinator, risorius, etc., added to the longitudinal fibres of the orbicu-

laris proper, furnish transverse filaments, while a third set runs diagonally across, obliquely between the other bundles, from before backward and from the skin to the internal mucous membrane.

The dentist who constructs artificial teeth has in his keeping the making or marring of the whole human face. If he is not an anatomist, and at the same time has no artistic ideas, and if he does not (as carefully as the sculptor) study the face which he is endeavouring to idealize, he is unworthy a place among artistic dentists. When one sees the perverted, distorted, deformed features of some one who might have a pleasant expression; when children, perhaps, look upon a mother from whose hallowed image all the sweetness, love, patience and tenderness have been eliminated by the cursed work of some pretender to knowledge of which he is in utter ignorance; when we reflect upon the blasted lives of young women whose future perhaps is wrecked through their being made repulsive to one who should be attracted; when we observe upon the streets, in society—at home and abroad—the horrible caricatures of the human face divine, that are the results of reprehensible ignorance of pretended dentists, one wonders whether, after all, our profession, as a whole, brings more of good than evil upon mankind. When we think of what it might be, and what it is, we are moved to weep at the present status of the art of dentistry, and are consoled only by the remembrance that amid all the “Cheap Johns” who are violently struggling for a bare existence, there are a few who do honour to their profession by conscientious and intelligent work, and who are rewarded—as such men always are—not only with the plaudits of a judicious world, but by the more substantial benefits of well-paid labours.

Dental Register.

DR. WOOLLEY knows there are many who favour immediate root-filling, but in his estimation, the parts surrounding these affected teeth should be placed in a healthy condition, to produce healthy action, and that requires thorough treatment. When one studies closely the pathology of devitalized teeth, particularly of troubles arising from putrescent pulps, he cannot fail to discover that the whole tooth and adjacent parts are poisoned by the effete matter passing off from the dead pulp.

THE TREATMENT OF FRACTURE OF THE LOWER JAW.

Hansy (*Centralbl. f. Chir.*, No. 40, 1897) reports 3 cases of fractured jaw in which he applied with success a strong wire around all the teeth, and twisted both ends together in front of the symphysis. To prevent this ligature from slipping, the anterior and posterior parts were fixed by loops of very thin wire, such as is used for flowers, which were passed between the teeth and firmly secured. The advantages claimed for this method are that the patient is able to separate the jaws without disturbing the fracture, and to chew soft food. The patients treated by the author were able to retain the metallic splint until consolidation had been effected, and did not suffer from any of the troubles—swelling of the gums, loosening of teeth, ulceration of the tongue—which have been regarded as serious objections to the use of the wire ligature. This plan of treatment is of course inapplicable to edentulous subjects.—Mahé (*Revue de Chir.*, October, 1897) advocates very strongly the use of Kingsley's apparatus in cases of fracture of the lower jaw. This consists of a dental splint of vulcanite rubber, to which are attached two curved arms of steel, which, emerging from the mouth, extend over the cheek to the angle of the jaw on either side. These are fixed by a sling of gauze passing beneath the chin from one arm to the other. This apparatus, which was devised about twenty years ago, has been applied with complete success by Maké, who states that by its simplicity and the ease of its construction, by the slight amount of discomfort it causes, by the freedom it affords to the tempero-maxillary articulation, and, consequently, the possibility it permits of an almost normal alimentation, and by the perfect apposition of the fragments it assures, undoubtedly constitutes a method of rendering marked service in most, if not all, of the cases of fracture of the lower jaw.

British Medical Journal.

TO RELIEVE SENSITIVENESS OF TOOTH.—Dr. Platt says : Chlorid of ethyl will relieve the sensitiveness encountered in grinding and shaping a tooth for crown work. After its use you can cut the tooth as you like. By holding it a little distance from and spraying the tooth with a sharp stone you can cut without pain.

PULP DEVITALIZATION IN THE TEETH OF CHILDREN.

By Dr. DARBY.

One of our great difficulties in dealing with the teeth of children is the devitalization of the pulps when indicated. I have used, with much success, for this purpose a paste of powdered cantharides and carbolic acid; say about one-twentieth grain of the powder with enough carbolic acid or creosote to make a paste. I know that the use of arsenic for this purpose is justly viewed with much suspicion, but my opinion is that it is largely a question of how much arsenic is used. I use arsenic for this purpose in very minute quantities and have had no ill results. The canals of children's teeth should be cleansed thoroughly and sterilized. I question the use of cotton dressings in these cases, for should the foramen be large, owing to a partial resorption of roots, soft tissues might be impinged upon, and the cotton becomes a source of irritation or worse. I think the safer practice is to use fluid in the canals and oxychloride in the pulp chamber.

International Dental Journal.

DENTISTS WHOM IT IS WELL TO AVOID.

The one who has acute exacerbations of insanity when exposed to any new fad. The one who is always successful with all his difficult operations. The one who can always match your case and improve on your treatment. The one who always finds you have omitted something in the examination of your case. The one who thinks he can talk well and is ready to discuss any paper of the evening. The one who is always the first to do a new operation. The one who is in a chronic fear of being anticipated in his important discoveries. The one who is so self-conscious that he imagines every casual remark directed toward himself.

Dental Practitioner.

SAVING GOLD WASTE.—Before melting gold fillings, etc., from the laboratory, place them in nitric acid to dissolve any small particles of iron, silver, etc. Filter out the acid, fold the fillings in the filter paper and burn it off while melting the gold.

COMBINATION FILLING, AMALGAM AND GOLD.

For a lower molar, with proximal surface badly undermined, fill the cavity rather full with amalgam. Remove a portion and insert Steurer's gold, immediately forcing it into the amalgam with large points, at first, adding the gold till it overcomes the mercury. Complete in the ordinary manner, using any gold preferred. The deposits of oxide and sulphides from galvanic action prevent recurring decay at the cervical margin, and there will be less trouble from extremes of heat and cold than from either metal alone.

Dental Register.

DIPLOMAS WHILE YOU WAIT.

The following notice recently appeared in a Texas paper :
Personal. Workers desiring to earn quickly degree of M.D. or D.D.S., address Lock Box 196, Chicago, Ill.

A dental student, who shall be nameless, thought he would investigate and so wrote to the address given. He received the following letter in reply :

J. Armstrong, M.D., President and Treasurer.

Chas. M. Hovey, L.L.D., Secretary.

J. H. Randall, Ph.D., M.D., Vice-President.

INDEPENDENT MEDICAL COLLEGE.

Incorporated under the Laws of the State of Illinois.

PEOPLE'S INSTITUTE, COR. VAN BUREN AND LEAVITT STREETS.

Mr. ———

Chicago, July 2, 1897.

Dear Sir,—Yours inquiring how to secure the degree of D.D.S. received. The right to any degree should depend upon the scholarship and ability of the person seeking it. We have become aware that there are a great many students of medicine and dentistry who have spent much time and been to considerable expense with a preceptor or in college to prepare themselves to earn a livelihood, but from some turn in their affairs were unable to complete the intended course. A large percentage of them are able and worthy and only need proper encouragement to get in a way of self support instead of waiting in idleness for the impossible to happen so they can start on strictly technical lines.

They have been diligent students, but lack of means pre-

vented them from getting far enough advanced to graduate and get the degree sought conferred upon them. We are satisfied from long experience in educational work that many of them are better qualified to conduct a safe practice than hundreds who have graduated after taking a four years' course. Independent Medical College has taken a solid stand in behalf of such students and has opened a way for them to graduate on furnishing proof of attainments either in Dentistry or Medicine satisfactory to its faculty. If not up to where they ought to be it furnishes them an opportunity to rapidly acquire the knowledge they may lack by giving them instruction day time or evenings, by lectures and clinics at the college, or a practical course by mail. The course can be commenced at any time. The time you will have to give to study before you can graduate will depend on your present knowledge. We will put you through as fast as you can go. We will be pleased to give you any further information you desire or would be pleased to have you call and see us.

Yours very truly,

J. H. RANDALL, Ph. D., D.D.S., M.D.

Dental Digest.

TOOTH AND MOUTH WASH.

The following makes a good tooth and mouth wash:—

			oz.
Eau de Cologne	...	...	16
French rose-water	...	...	8
Distilled witch hazel	...	...	8
Tincture of myrrh	...	...	8
Glycerin of borax	...	...	4
Salicylic acid soap	...	...	4

Dissolve the soap in the eau de Cologne and tincture by a gentle heat; then add the other ingredients, and filter.

A few drops of this agreeable preparation to be used on the tooth-brush.

Chemist and Druggist.

A BRIGHT LAD.—The *Kansas City Medical Index*, mentions a bright lad in that section, who upon being asked by his teacher the name of the most important canal in America, the youth replied that it was the alimentary canal.

HOW TO FILL ROOT CANALS.

By W. A. MILLS, D.D.S., Baltimore.

If the root-canal is one from which we have removed the pulp, after having destroyed its vitality with arsenious acid, using the following formula :

R	Arsenious acid,	..	gr. xv.
	Acetate of Morphia,	..	gr. v.

M et. Add sufficient wood creosote to make thin paste ; afterwards add enough powdered alum to make a stiff paste.

Or, as we sometimes do, devitalize with a red-hot instrument ; again, a straight drill rotated rapidly, producing friction enough to accomplish the desired results.

We swab out the root canal with a saturated solution of tannic acid in glycerol, after which we heat a tiny piece of gutta-percha, and pass it gently to the apex of the root ; then we fill the root-canal with any of the filling material, preferably cement. This treatment we give all root canals where we can reach the apical foramen, and where we cannot, (as instanced in contracted or tortuous root-canals,) we force the tannic acid solution into the inaccessible pulp-tissues, after which we fill in the same manner as in the accessible cases. In these cases no systemic conditions are considered.

When the pulp has died from any cause otherwise than that intentionally produced, we proceed, viz., at the first treatment we remove all carious and liquid matter from the pulp chamber, being cautious not to enter the root-canal.

We then saturate a pledget of absorbent cotton with Marchand's peroxid of hydrogen, place it loosely in the pulp chamber, selecting an old steel instrument with sufficient face at the point to fill, or nearly fill the entrance to the pulp chamber, we heat it red-hot and place it upon the pledget of absorbed cotton.

Immediately steam is generated, oxygen is set free, both filling the root canal with considerable pressure, this is repeated three or four times, or until the patient says heat and pressure are felt within the tissues, outside of the apical foramen.

We then cleanse the root-canal, after which we saturate a roll of absorbent cotton with a solution of equal parts of the tinctures of iodine and aconite, or tincture of iodine alone, and work it into the root-canal, behind this we pack tight a pled-

get of cotton, fill tooth with temporary filling and dismiss the patient for a few days.

When patient returns, if no inflammatory manifestations have developed, we remove all temporary work, swab out the root canal with the tannic acid solution, and fill with pink gutta-percha. In these cases all systemic conditions are taken into consideration, more especially those of tuberculous diathesis.

In cases where there is a fistulous opening, we treat more heroically and fill immediately. In all cases after filling permanently, we paint the gums at the apex of the root with the iodine and aconite mixture.

American Journal of Dental Science.

NITROUS OXIDE.

Are there any cases in which nitrous oxide ought not to be administered? Dr. Silk says in reply, I know of but very few. The very frequent assurance of the patient that he has a "weak heart" is far too vague for any importance to be attached to it, and even in respect to definite organic heart lesions I should not hesitate much to give gas to a patient who was well enough to walk into the room without assistance. The same may be said, too, with regard to the phthisical, but these latter are apt to become unduly livid. I have certainly seen an epileptic fit occur during the administration of nitrous oxide, but this was probably a mere coincidence. I have seen nothing of the sort in the many other epileptics to whom I have administered, though a good many describe their subjective sensations as being very similar to the epileptic aura. Pregnancy? I have notes of a solitary case in which the administration was followed by premature delivery the following day, but the foetus was macerated, and had obviously been dead for some time. Perhaps, on the whole, it would be wiser to advise against the administration in the eighth or ninth month. Very young children and even infants take gas well, but the fear inspired by the apparatus is probably greater than, and is an addition to, that of the operation, and I question whether it is wise to force it upon them.

Finally, a few words as to after treatment. More or less hysteria is not uncommon, and must be treated with firmness, the sedulous attentions of over-anxious friends must be dis-

couraged, and the patient urged to help himself in every way. Sickness is not unknown, but is very rare, and if it occurs at all it will come on within a few minutes of recovery. As a rule, therefore, it does more harm than good to keep the patient recumbent for any length of time, as is so often advised by those who are not familiar with the gas; the general experience is that, on the average, the patient is quite fit to leave the house within a quarter of an hour or twenty minutes of the administration.

Just as it is unwise to administer nitrous oxide on a full meal, so it is better that no solid food be taken for an hour or so after.

Treatment.

ARE THERE SPECIAL NERVES FOR PAIN?

This question has lately been the subject of an interesting academical discussion between physiologists of no less authority than Professor Frédéricq of Liège and Professor Richet of Paris, the former affirming and the latter denying the existence of nerves having the definite function of conveying afferent impressions of pain. Curiously enough these exponents of one of the most objective of sciences rely mainly upon psychological arguments in support of their respective views. Thus Frédéricq bases his case for the special nerves on such facts as the longer latent period of painful age compared with tactile sensations, the absence of sensibility to pain in certain cases, the difference in the sensibility of the same spot to pain and touch, and finally the fact that the quality of the sensation of pain is invariable for a stimulus of whatever nature, provided the intensity and the surface affected are the same. Thus the cut of a whip stings or burns the back like a hot iron. Richet's views are held also by Lombroso, and are supported in a recent article by Ph. Tissier. Tissier quotes two experiences of his own to show that pain is only the result of a sensory stimulus powerful enough to produce a special state of disorganisation in the function of the cells. Thus in slipping on the side of his foot he had first the sensation of the shock, and quite a second later that of the pain, which lasted four or five seconds. He also refers to the case of a cyclist who ruptured the right tendo Achillis in lifting the right foot from the ground while mounting, but

did not feel the pain, which caused him to faint, till the foot had swung over and reached the pedal. We must confess that to us arguments of this type are not very convincing. On the other hand, we have evidence, such as that of syringomyelia, in which the senses of pain and temperature, but not that of touch, are lost, to show that the paths for these impulses travel up in different regions of the cord. It is possible, too, as Dr. Poore suggests, that the cutaneous apparatus for the reception of these sensations may be distinct. Thus a patient suffering from strychnine poisoning is thrown into agonising convulsions by the touch of a feather of the skin, while his pain is relieved by vigorous kneading and rubbing. The nerve terminations for touch may thus be superficially to those for pain, and this would account for the former sensation being the first to be appreciated. All cutaneous impulses are, no doubt derived from a common ancestor, that general protective sense which has given rise to the special senses as well, but for our part we cannot but believe that in the process of division of labour separate terminal organs and distinct nerve fibres have arisen to subserve the various forms of sensation now recognised, and we would maintain that this view, it not absolutely established, is at least strongly supported by the evidence of anatomy and physiology.

British Medical Journal.

HOW TO TREAT CHILDRENS' TEETH.

By Dr. MARY HARTZELL.

If a tooth must be lost I should not hesitate to give the child an anæsthetic and take it out at once, and under no other conditions should an aching or abscessed tooth be extracted for a child in my office. If there is a chance to alleviate the pain and save the tooth I should win the child's confidence and apply some simple medication, make an appointment and let him go. Never trying to do much more than get acquainted and make a pretence of doing something the first time; if the child is timid this is a good beginning, and we should not forget that though some children will bear a first operation of some severity with Spartan-like heroism, no earthly power will bring them back for a second sitting.

Children should never be hurt, alarmed or fatigued at the first sitting ; of course it would be better if these sensations could be spared them for all time, but if you work up to it gradually you can perform quite painful operations and still retain their good will.

I think it a mistake to ever try to do the most thorough work for little children, better repeat a mild operation at intervals and keep their confidence. Dr. Bonwill advocated a practice that I think can frequently be resorted to with advantage, he simply smoothed the margins, removed the loose decay, and filled with pink gutta-percha. This is especially adaptable when two proximal cavities come together, the cavities can be filled as one without making any undercuts, and he claims that the elastic quality of the gutta-percha under the force of mastication served to spread the teeth apart and so make space for the larger permanent teeth. I also find this method recommended with the use of nitrate of silver ; in this case you approximately adapt your wedge of gutta-percha, dip that part of it that will come in contact with the deeper part of the cavity into powdered nitrate of silver and apply. My authority says that when the filling is worn out you will find the floor and walls of the cavity consist of black hardened dentine that will resist decay for a long time ; the silver nitrate also has the quality of obtunding sensitive dentine, and where undercuts are necessary they can be made after this treatment with comparative ease. I use oxyphosphate and amalgam in many of these cases,, but find if the cavities are large, the gutta-percha is borne with much greater comfort and much less danger to the life of the pulp.

I think it is best where there is pulpitis to reduce the inflammation and if necessary destroy the pulp rather than sacrifice the tooth unless it be but a comparatively short time until the tooth will be lost ; of course one should never forget the very large size of the apical foramen when it is necessary to use a devitalizing agent.

Usually I do not attempt to fill the roots of devitalized temporary teeth, simply pack the pulp chamber with some antiseptic dressing and fill the cavity as usual ; in cases where there have been abscesses I have left the chamber free, filled the cavity and then with a drill made a small opening into the pulp chamber through the buccal surface near or above the gingival line and have obtained a comfortable result for my patients, poor practice perhaps, but with little people

I find that the "do the best you can" method the only one that is practical.

Two groups of teeth that should receive especial attention are the temporary second molars and cuspids. These teeth remain in the mouth until after the approximate permanent teeth are in position and if they are decaying may cause much damage to them. Another point that should never be neglected is the suggestion to the care takers in regard to cleanliness. The brush should be systematically used as soon as all of the temporary teeth are in position and it should be impressed on the children themselves as soon as they are old enough that its daily use will save them pain, trouble and expense.

We all realize I think that this is a practice trying to patience, skill and strength, and that the results are apparently transient and without honour. But I believe the memory of it will survive and that in after years men and women will be grateful to us for work conscientiously performed.

The Dental Review

Dr. REGISTER in answer to enquiries concerning his matrix, says:—The ribbon matrix which I have been using for some time, and have demonstrated frequently, is made of strips of thin, planished copper, thin enough to pass into small interspaces between the teeth, and is laced in and out of these spaces. Cavities which are compound have by this means an additional wall made, against which the filling is impacted and its contour outlined. Time is saved by this means, not only in the impacting of the filling, but in the subsequent polishing operations.

NEW LOCAL ANÆSTHETIC.—An excellent local anæsthetic, the effect of which lasts about five minutes, as follows :

Chloroform	.	.	10 parts
Ether	.	.	15 "
Menthol	.	.	1 "

Apply as a spray to the surface, carefully guarding the nostrils from its fumes.

Zahnärztliches Wochenblatt.

Reports of Societies.

STUDENTS' SOCIETY, NATIONAL DENTAL HOSPITAL.

The October meeting of this Society was held on Monday, the 11th.

The Secretary, Mr. H. M. Griffiths, read a letter from the President, G. Cunningham, Esq., expressing his inability to be present.

It was then proposed by Mr. Bobinsky, and seconded by Mr. Tattersall, that Mr. S. Rose be asked to take the chair, which was unanimously agreed to.

Mr. S. Rose having taken the chair and having welcomed the visitors, the minutes of the last meeting were read and confirmed.

Mr. Pavitt was ballotted for and elected a member of the Society.

The following were proposed members of the Society to be balloted for at the next meeting :—Misses Evans and Handley Messrs. Armitage, Colbran, D. Humby, Irby, Littleboy, Lockett, New, Prickett, Venning and Thorne.

The chairman announced that at a Council Meeting held previously, secretaries pro. tem. had been elected for the winter Dance and Smoker—Mr. Must, Secretary for the Dance, Mr. Griffiths for the Smoker.

On Casuals being called for,

Mr. Burton showed a method of strengthening a vulcanite upper by soldering a gold wire to the pins of the six front teeth.

Mr. S. Rose shewed a model of irregularity, sent over by Mr. T. G. Jenkin, of Malta, a past member of the Society, in which the irregularity was due to supernumerary teeth; there being three present.

The Chairman then called on Mr. Lawrence for his paper on "Necrosis," which is published at page 1015.

In the discussion that followed Messrs. Glassington, Griffiths and Must joined. Mr. Lawrence having replied,

A vote of thanks was given to Mr. Lawrence for his interesting paper, and to Mr. S. Rose for his duties as Chairman and the Meeting terminated.

Dental News.

CHARING CROSS HOSPITAL MEDICAL SCHOOL.

The following Entrance Scholarships have been awarded :

Livingstone Scholarship (100 guineas) to Mr. S. A. Boyd.

Huxley Scholarship (55 guineas) to Mr. W. J. O'Brien.

Universities' Scholarship (60 guineas) to Mr. W. G. Rogers.

Entrance Scholarships have also been awarded to Mr. E. Bayley (60 guineas) ; Mr. C. L. Lakin (40 guineas) ; and Mr. G. S. Welham (30 guineas).

DEATHS UNDER CHLOROFORM.

We have received from Mr. Padwick, assistant house surgeon to the Salop Infirmary, Shrewsbury, the following particulars of a case of death which occurred in that institution on Friday, October 8th, whilst chloroform was being administered. The patient, I. R., aged 62, had had his tongue removed for Epithelioma last August, and at a second operation had had an infected gland at the angle of the jaw removed. The operation about to be performed was for another infected gland below the right ramus of the jaw. On both the previous occasions Mr. Padwick had administered chloroform, and the patient had taken it well. Mr. Padwick had been giving the anæsthetic six minutes, during which time $1\frac{3}{4}$ drachm had been used, the method of administration being a piece of lint and a drop-bottle, when the patient struggled for a few seconds, the face became congested, pulse and respiration ceased, the pulse stopping first. Artificial respiration, the use of the battery, and other means, failed to produce any effect. The heart had been examined previous to each administration of chloroform, and nothing abnormal detected.

We extract from a report in the *Durham County Advertiser* of October 8th the following account of an inquest on a patient who died while under the influence of chloroform : The patient was a strong healthy boy, aged 15, who was operated on by Dr. A. M. Vann for phimosis, chloroform

being administered by Dr. Plummer. Before the operation Dr. Vann, who was well acquainted professionally with the lad, carefully examined his heart without detecting any abnormality; nor was any defect observed at the necropsy. The patient took the chloroform extremely well, going under in about five minutes. The operation was successfully performed, and just before its conclusion Dr. Vann told the anæsthetist that he should require no more chloroform. Dr. Plummer, who had been carefully watching the pulse and pupils, and was also observing the respirations, accordingly desisted, but while Dr. Vann was fixing the last bandage it was noticed that the patient's lips became dark, and his breathing irregular. Hypodermic injections of brandy were at once given, and artificial respiration performed, in all for an hour and a quarter; in spite of these and other measures, however, death took place within half an hour of the commencement of the operation. In evidence, Dr. Vann stated his belief that death was due to syncope from the action of chloroform upon the nerves of the heart, and in corroborating this Dr. Plummer said that he had seen no similar case in an experience extending to some thousands of chloroform administrations. The jury returned a verdict that the deceased died from syncope whilst under the influence of chloroform administered during an operation, which operation was conducted with all due care, skill, and judgment.

British Medical Journal.

ENTRIES AT THE MEDICAL SCHOOLS AND COLLEGES IN ENGLAND.

By the courtesy of the Deans, Wardens, or other officers of the various medical schools, we are enabled to publish the following returns of the number of students who have entered at the various medical schools in England this session, and of those who have joined for various special courses. The first column (A) shows the number of those who have joined the several schools for the full curriculum. The returns are liable to subsequent correction, but it is not probable that any corrections will be of such a nature as materially to alter the general effect of these statistics.

	A.	B.	C.	D.	E.
St. Bartholomew's Hospital ...	97	91			188
Charing Cross Hospital ...	21	36	20	6	77
St. George's Hospital ...	49	4			53
Guy's Hospital ...	86	26	44	24	156
King's College ...	15	140		4	155
London Hospital ...	68	47		10	115
St. Mary's Hospital ...	54	61	2	13	117
Middlesex Hospital...	14	17	15		46
St. Thomas's Hospital ...	52	19		10	71
University College ...	37	40		30	77
Westminster Hospital ...	9	10			19
London School of Med. for Women	28	3	1		32
Cambridge University ...					
Oxford University ...	27				27
University of Durham College of Medicine ...	23	32	5		60
Bristol University College ...	15	1	2	7	18
Owen's College, Manchester ...	62	66	16	67	144
University College, Liverpool ...	57	11	11	24	79
Yorkshire College, Leeds ...	29	13	2	25	44
Mason College, Birmingham ...					
University College, Sheffield ..					
University College of South Wales, Cardiff ...	19			11	19
London School of Dental Surgery					
National Dental Hospital ...			13		

A. Number of students who have joined for the full curriculum.

B. Number of students who have joined for special courses.

C. Number of dental students.

D. Number of students who have joined classes for preliminary instruction.

E. Total, excluding students who have joined classes for preliminary scientific instruction.

The total number of new students who have entered for the full curriculum at the medical schools in London is according to these figures 502. This shows a small increase upon last year, when the total was 478.

British Medical Journal.

NATIONAL DENTAL HOSPITAL.

The Students' Annual Dinner will be held at the Holborn Restaurant on Friday, the 26th inst. The Chair will be taken by E. W. Roughton, Esq., F.R.C.S., the Hon. Visiting Surgeon to the Hospital. Old students who may not have received notice should apply to the Secretary for tickets. The Entrance Exhibition of £15 has been awarded to Mr. S. D. Venning.

RIBBED GLASS FOR WINDOWS.—Experiments to test the relative efficiencies of plain and ribbed glass have shown most conclusively that much more light is thrown into the darker corners of rooms when ribbed glass is used. It would appear that the corrugations disperse the light thoroughly, and cause a more general diffusion of light than plain glass.

Dental Hospital Report.

WORK DONE at the Victoria Dental Hospital of Manchester during the month of OCTOBER, 1897.

Number of Patients attended	964
Number of Extractions	527
Number of Extractions under Anaesthetics	342
Gold Stoppings	154
Other Stoppings	124
Miscellaneous { advice, temporary fillings, scalings, dressings, &c.	280
Gold and Porcelain Crowns	27
Inlays	0
Total	2418

OSWALD TIDSWELL, *House Dental Surgeon*

ANSWER TO CORRESPONDENT.

T. G. Has our correspondent read our recent remarks anent a Dental Exhibition? Much of what he says might be true with respect to an exhibition to which members of the Profession might be invited, but there is, in our opinion, much doubt as to any benefit accruing to the general Public.—ED. B. J. D. S.

British Journal of Dental Science

No. 717.

LONDON, DEC. 1, 1897.

VOL. XL.

INAUGURAL ADDRESS.*

By W. E. HARDING, L.D.S. Eng.

Gentlemen,—Permit me in the first place to express the appreciation I feel of the high honour you have conferred upon me by electing me to the Chair of this Society, which is without doubt the Blue Ribbon of our profession.

I feel deeply gratified by the confidence you have placed in me, but were it not for the able support and assistance of the Council and Officers, of which I feel assured, I should have hesitated to accept so responsible a post.

The branch of the healing art which we practise is so circumscribed and professional societies have, of late years, so largely increased in number, that it becomes each year more difficult to choose a subject for a Presidential Address with any claim to originality.

The early history of the Odontological Society, with the part which it bore in organising our profession, indeed of lifting it from a state of chaos to the dignity of a profession, has been often told by abler pens than mine.

It is just forty years since the first formal meeting of the Odontological Society, for though it was constituted in the previous year the first meeting was not held until January, 1857. During these forty years the advance of our calling has been most marvellous ; whether we view this advance

* Read before the Odontological Society of Great Britain.

from the adaptability and improvement of our appliances or from the advance of our pathological knowledge, we see the enormous strides that have been made.

One of the most noticeable features of this period is the investigation of micro-organisms, a science which we class under the name of bacteriology.

Little did the learned Leeuwenhoeck dream when, more than two centuries ago (1675), he recorded that he had found "viva animalculæ" in his saliva, that this, the first beginning of bacteriology, would lead a couple of centuries later to the inauguration of a new era in the treatment of disease, in which the so-called animalculæ, from being considered as curiosities, would come to be regarded as powers for good or evil of the first importance.

In connection with this subject two names stand prominently above their compeers, Pasteur and Lord Lister.

Pasteur's work in the investigation of fermentation first shed light on this subject. He, like Darwin, approached any subject for investigation with an open mind, searching only for truth. He demonstrated that fermentation was not a purely chemical action but the result of the vital action of minute organisms, and also showed the important part they play in producing decomposition and putrefaction in organic matter.

Further experiment showed that these organisms were not produced by spontaneous generation, but from spores or germs which are found floating in the air.

This led Lord Lister to adopt the use of antiseptics in surgery; a procedure which is so well known to us all, and which will for all time be associated with his name, and has been of such inestimable benefit to suffering humanity.

Our own speciality has not been behindhand in research on this subject. At the Medical Congress in 1881 Messrs. Underwood and Mills read a paper on "Micro-organisms in

relation to Decay in Tooth Tissue." Since that time much has been done by many workers in this field. Mr. Chas. Tomes, Mr. Howard Mummary, Dr. Miller in Germany, Dr. Black in America, and many others, have demonstrated the parts played by these organisms in producing caries.

In a paper read before this Society some time since the author remarks, "if there were no micro-organisms in the mouth there would be no decay of the teeth," and I think this proposition is generally accepted as correct.

The human mouth forms quite an ideal incubator for bacteria. Here we have a moist cavity kept at a sufficiently high temperature, with ready access to the outside air, the interspaces between the teeth, fissures in the enamel, &c., forming not only positions for their lodgment but also store-houses for particles of food, together with dead epithelial cells and mucus, on which they flourish, and which only the exercise of the greatest care in the constant use of the tooth-brush can remove.

Under these conditions we should expect to find a large variety of organisms in the mouth, but by a process of "survival of the fittest" the constant forms met with in the mouth are generally considered to be about six or eight.

In his work on this subject Dr. Miller gives some interesting experiments on the action of mouth bacteria on carbohydrates, showing that by the fermentation they produce, lactic acid is evolved, an acid which we know has a powerful solvent action on lime salts.

These organisms seem to have a dual action, first by the acid they produce removing the lime salts, and then by a peptonising action on the albuminous matrix of the softened dentine, absorbing and digesting it as food.

As we should naturally expect, the destructive action proceeds more rapidly in the direction of the dentinal tubes, along which the bacteria find their way.

They produce a distension or enlargement of the tubes by the liquefaction of their walls, and often two or more of the tubes are converted into one by this process ; the softening of the dentine going on in advance of the organisms themselves.

In this connection it is interesting to note that teeth affected with pyorrhœa have a remarkable immunity from caries, though the pockets of detached gum round the necks of the teeth are teeming with bacteria.

Doubtless the explanation of this is that, unlike the acid fermentation of carbo-hydrates, the putrefaction from the sockets of the teeth is alkaline, and so does not act on the lime salts.

The enormous increase of caries in the teeth of all civilised races during the last two or three generations is apparent to us all. The question whether this is due to the food of modern life being more suitable for the growth of mouth bacteria, or that such foods and the mode of life which we call civilisation, result in a weak quality of tooth that does not so well resist the disintegrating forces that are at work in the mouth, is one that still requires investigation.

The researches of Mr. Chas. Tomes into the composition of enamel seems to negative the theory that the teeth of the present generation are deficient in any chemical constituent ; but may they not be more defective in structure and their constituents more loosely held together than the teeth of our forefathers ?

There seems to be little doubt that the hygiene of the mouth has a far wider significance than the question of tooth decay, it being probably the inlet and the incubator for the bacillus of many diseases, and is often the unsuspected source of various forms of septic poisoning. Hence the importance of impressing upon our patients the necessity for systematic strict cleanliness.

By adopting strict Listerian principles in the treatment of septic pulps, we are enabled to deal with a class of cases which years ago were a source of great trouble and uncertainty. I well remember the constant dressing of septic canals, continued sometimes over many visits, while we are now able in the majority of cases to sterilise and fill these roots at one sitting. This enables us by adopting a suitable form of crown to bring into useful service badly decayed teeth and roots which would otherwise have fallen an early prey to the forceps.

I have thought that these few remarks on this subject may be of interest to you and only regret that they partake more of the nature of a mere outline of the work of others than of any original research of my own, my time having been devoted to practical work.

It is not many of us that have the aptitude for original research—I will not say that we have not the time, for it is well known that several of our members who have done so much original investigation have at the same time been engaged in busy practice of their profession, but I fear we do not make all the use we might of our spare moments.

Your council are earnestly considering the question of our future habitat. Indeed, during the recess several council meetings have been held to consider various proposals.

I feel sure that whether we retain our connection with the Dental Hospital, moving with them into the new buildings, or migrate further afield, your council may be relied upon carefully to consider the matter in all its bearings before coming to a final decision on so important a matter.

In conclusion, gentlemen, I would express the hope that more members would take part in the discussions. The Secretaries have the promise of some interesting papers, but there are still, I believe, some evenings to be filled up. I would also remind you of the great value of casual com

munications. Many interesting cases come before us in private practice. If we would only follow Captain Cuttle's advice, "when found make a note of," we might each contribute something to the interest and instruction of the members of our Society.

DENTAL MECHANICS.

By HARRY ROSE, L.D.S., Eng.

PART IV.—APPLIANCES AND DEVICES FOR THE CORRECTION OF DENTAL IRREGULARITIES.

(Continued from page 730.)

Another method by which upper centrals within the arch can be brought forward is by means of what is known as an inclined plane, (Fig. 18.) This is practically an elongation of



Fig. 18.

the opposing front teeth made by bringing the vulcanite over the points of the lower centrals and slanting it inwards in such a manner that it will strike behind the upper tooth or teeth, on closure of the mouth. As these loosen by the pressure, they slide forward and outwards along the plane, and in

the course of a short time get sufficiently advanced for the lower teeth to pass behind them ; the length of time required depends in a great measure on the amount of force exerted by the patient in closing the jaws.

When the teeth are sufficiently advanced that the lower centrals past behind the uppers, the operation may then be regarded as complete.

The advancement forward of a tooth within the arch may also be affected by a strip of rubber dam, this should be ligatured to the teeth on either side of the misplaced one, and then drawn in and looped over it, (Fig. 19).

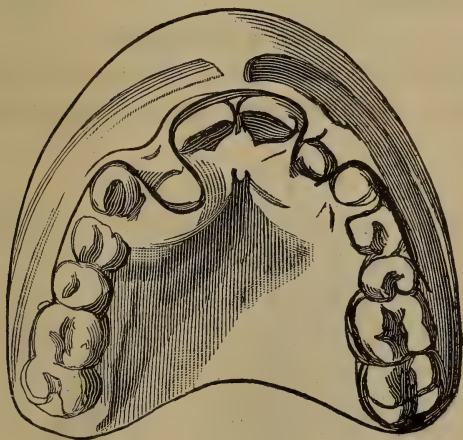


Fig. 19.

In applying the rubber, a strip about three inches long and an eighth of an inch wide may be taken and securely ligatured to the teeth on one side first, then having passed the silk twice round a bicuspid on the other side of the mouth, the rubber is put on the stretch and held either by the patient or an assistant, while it is included in the ligature around the bicuspid.

As it is now under considerable tension, it has to be drawn into position and ligatured to the teeth adjoining the offender.

and it may then be drawn through the space and passed over the misplaced tooth, and secured so that it cannot slip off. The contractile power of a slip of rubber dam may be used either for elongating or shortening a tooth, by attaching it under tension to the neighbouring and then drawing it down to, (or above, if in the upper jaw) the tooth that has to be lengthened, and attaching it to the same by a ligature.

If a tooth has to be shortened, the rubber may be attached to the necks of the neighbouring teeth, and then stretched over the point of the tooth to be shortened, this will bring a considerable amount of pressure to bear, if the rubber strip has been made tense.

ANTERIOR PROTRUSION.

The following cases will serve to illustrate two of the most effective methods for remedying this condition of the teeth.



Fig. 20.

These two cases are somewhat interesting, as being those of two sisters; they were both treated together, so that a fair comparison could be obtained of the methods adopted.

Fig. 20 represents the mouth before operations. Fig. 21

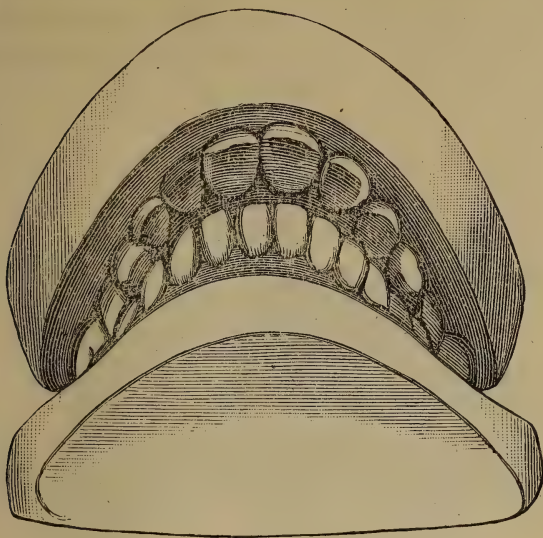


Fig. 21.

is the same model articulated with the lower, and shows the

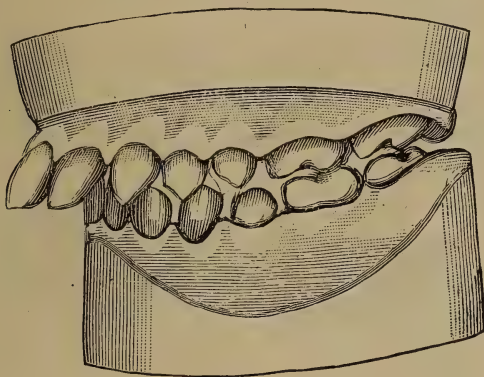


Fig. 22.

projection of the upper teeth. Fig. 22 is a lateral view of the same. Fig. 23 shows the appliance made to correct the irregularity, Fig. 24 being an outside view of the same.

The appliance consisted of a vulcanite plate covering the back teeth on either side, and into the buccal borders little loops were vulcanized, these were to fasten the rubber bands to.

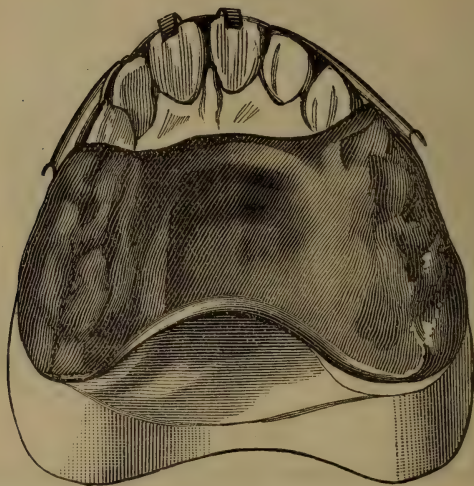


Fig. 23.

An impression was now taken of the faces of the six front teeth, and from the resulting model a zinc die and counter were obtained. A piece of dental alloy was struck up to the

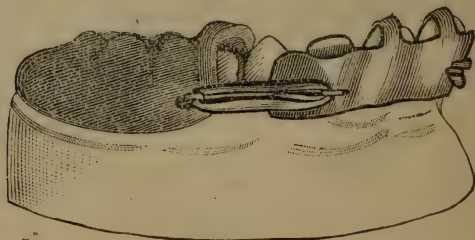


Fig. 24.

teeth, (see Fig. 24), and it will be noticed that two small extensions loop over the points of the two front teeth, the

object of these pieces is to prevent the plate from slipping up and cutting into the front gum. Two loops were soldered to

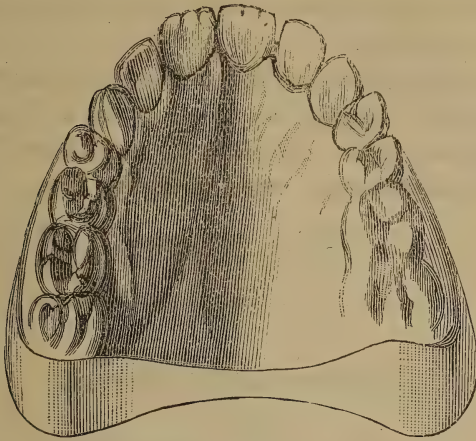


Fig. 25.

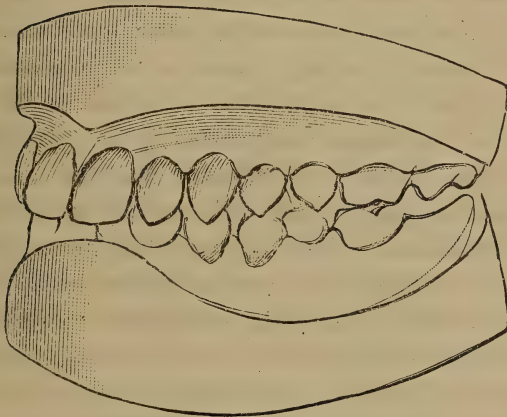


Fig. 26.

the upper and distal extremities of this plate, in a line corresponding with the loops on the vulcanite plate, so that the two pieces could be attached by small india rubber bands. In this

case the traction was increased by using smaller bands, as the teeth moved, and was sufficient to draw the teeth into the position shown in Fig. 25 and Fig. 26 in less than five weeks. They were not only brought fairly in to a normal arch, but somewhat shortened.

When treating a case on this principle, it is as well to show the patient how to apply the rubber bands and renew them when necessary, more especially if an interval of two or three weeks has to elapse before seeing her again.

(To be continued.)

DENTISTRY IN RUSSIA.

By Mr. A. M. WOLFE, Wilna.

There are two ways of becoming a dentist in Russia. The old one is to apprentice oneself to some practitioner for the term of 3 years by paying a premium of from £30 to £45. Receiving a pupil the dentist has to inform of the fact the Inspector of the Medical Department of the city, who is an official of the Central Government, but may also have a private practice, and to send in an account of the boy's progress in mechanical work and operating every year. At the expiration of the three years the future dentist makes his appearance before an examining committee, consisting of the above mentioned Inspector, one or two medical men, and the same number of dental practitioners, residing in the city and chosen by the Inspector. The examination takes place at a dental school, if one exists in the place, or at the house of one of the examining dentists, where the pupil is given some work to do in mechanical dentistry, fill a tooth with amalgam or cement, and questioned as the treatment of simple diseases

of the teeth and mouth. If he satisfies the examiners he receives a certificate, then goes up to one of the Universities to be examined by the professors in a few subjects relating to the practice of surgical dentistry. Then, if successful, he receives a diploma and becomes a dentist. If he fails to pass the examination before the committee he has to appear again in six months' time and the same at the University. The fact that very few fail would tend to show that the examination is not a very severe one. Any one over the age of 17, irrespective of sex, is allowed to become apprenticed to a dental practitioner without any preliminary examination whatever.

In 1891, a new Dental Act was passed forming a class of dental surgeons as different from dentists. The aspirants to the new title are required to possess a diploma of six classes (or standards as you call them) of the gymnasium which they usually obtain by spending six years or more in a gymnasium from the age of 10. The curriculum includes a very good amount of Russian, Latin, Greek, German, or French, according to choice, the whole course of Arithmetic, Algebra and Geometry, Geography and History, Russian and General, and one year's study of mechanics. Armed with such a diploma our young man enters one of the dental schools, which at the present time are in the hands of private individuals, and remains there $2\frac{1}{2}$ years. The first year is devoted entirely to mechanical dentistry, the rest is given to operating, filling with amalgams and gold, extracting etc., under the guidance of experienced teachers, from 8 till 2 in the forenoon, each pupil taking his turn, and to lectures from 2 or 3 in the afternoon; in his spare moments the student may do a bit of mechanical work if so inclined. The lectures are given by professors of the Universities, and embrace most of the subjects necessary for the education of the dental surgeon.

The deficiency of both styles of creating dental practitioners is seen at a glance.

The dentists, or the bulk of them anyhow, are men with but very little education, and as such are hardly fit to be members of a noble and liberal profession, but there are some good mechanics among them. Each dental practitioner is allowed to have three pupils, but the Inspector may limit him to one or two if in his opinion there is not enough work for more pupils. Of late there has been a tremendous rush into dentistry, as it is thought to be a good paying concern, and men of all sorts and conditions and all ages have taken it up in the hope of gaining fame and cash. The dental surgeons in the majority of cases are indifferent mechanics, to use a mild expression, and often have their work done outside.

Most of the young men start in practice as soon as they obtain their diplomas, without taking an assistantship for a few years, although on the other hand it is not easy to get a situation here.

The practice of medicine and dentistry is strictly prohibited to anyone not possessing the required qualification, and in the majority of cases the law is carried out with the utmost rigour, except in far-off and out-of-the-way localities where the "znakhari," i.e., sorcerers and such like charlatans still hold their own, of course the village blacksmith comes in for a good share of tooth-pulling. Woe betide the unfortunate aspirant to dental honours and fees, fine and imprisonment may be his doom for three months, if the police and local practitioners take his case up before the magistrates, who have no two opinions on the subject. The public is also fairly well protected against unskilful treatment as far as the law can protect it. Should death or even severe injury result from the unskilful or careless treatment of the dentist, the patient has only to complain to the Medical Inspector and the guilty one will be ordered to take to study again and pass another examination, and if the offence be repeated a few times, he may be compelled to give up his practice altogether.

Knowing this, the dentist when a difficult case presents itself, sends his patient to some medical man, who treats but very seldom attempts the extraction of teeth, deeming it the dentist's domain. Should a patient find fault with his denture and complain to the Inspector, the latter will call upon two well known dental practitioners to examine the piece and give their decision accordingly. Sometimes cases are brought into Court and some amusing incidents occur.

The dental surgeons are allowed greater freedom in operating, and can prescribe for their patients and get their prescriptions made up, which the common or garden dentist cannot. The dental surgeon is a *homo novus* yet in Russia and the public hardly discriminate between him and his inferior brother, especially as before the new Act was passed, the dental practitioner could style himself either dentist or dental surgeon.

Medical men are permitted to practise dentistry without any additional examination, and some make use of this permission, having picked up a little knowledge of operating either at home or in a few cases by spending a few months in some dental surgery abroad. Besides these three classes of people who are lawfully entitled to practise dentistry some jewellers, dental mechanics that never went through an apprenticeship, barbers, and a few more of that ilk, by advertising and other means try to get the public to visit their establishments, but I believe the number of these is not very large, and the risk they run is certainly very great. Among the jewellers are some good mechanics and they often work for the profession.

Now a few words about the work itself. Gold is used but very seldom in provincial practices, as not many patients can afford to pay for it, and I dare say not many dentists can make a good metal plate. But the vulcanite work as done by the leading dentists is really good, although the swager is not

used the plates are thin, light, sometimes strengthened in the usual way, well finished and magnificently polished. Great care is taken in the finish, only the finest of sandpaper is used, the pumice brush but very sparingly, instead of whitening the denture on a lathe they rub it with a clean rag dipped in a substance called tripoli (I believe) mixed with oil, and finish with a little dry plaster, rubbing well with the finger all the time. The result is very gratifying indeed. Like Russians of all sorts and grades the dentists do not hurry themselves, smoke cigarettes all day long, and appear rather slow to one used to the rush and hurry of an English practice. The work done in the capitals and a few of the larger cities is certainly as good as any turned out anywhere on the globe. All the newest methods, materials, and instruments are known, thanks to Messrs. Ash's agents, and the fair number of foreign dentists residing there help to keep the work up to a high standard. Among the foreigners we may mention a good old Irishman, to judge by his name, a certain Mr. Murphy, who holds the distinguished post of dentist to the Imperial Court.

As far as the surgical work is concerned, whatever is attempted is done carefully, all forceps are disinfected immediately after use and sometimes before too, and all teachings of hygiene readily obeyed. Of course I am talking of the best members of the profession. There is a good deal of rotten work turned out here too. The fees are not very high, but still not so bad either. The charge for vulcanite work varies from 2s. to 6s. and even 8s. per tooth, the latter fee is rather exceptional in the provincial practices, complete sets from £4 to £6 or £8. Fillings are put in for 1s., 2s., and upwards, according to the material used and the operator's value of his time. For an honest and conscientious dentist who will not stoop to bad work it is very hard to have to compete with men who looking upon dentistry as a trade and

doing indifferent work, are satisfied with a small remuneration. The female dentist, especially if married, brings the fees down very much, as relying on her husband's earnings she will work for a smaller remuneration than any dentist can be satisfied with. No one would find fault with the female dentist if she would only treat poor patients, but when people who can afford to pay well for professional attendance go there for the sake of saving a few roubles, then it becomes very hard for the male dentist.

There is a good future for dentists in Russia, as the public is becoming more educated in dental matters, and people that ten or twelve years ago would not think of visiting the dentist now readily seek him out. Still, at the present time the dentist's lot is not a very happy one. The professional spirit is not developed yet among them and they often look upon each other more like rivals than fellow workers for the common good of the society. Besides, Russian ladies are passionately given to gossiping and scandal-mongering, and the dentist's least mistake and unfortunate accident, becomes the cause of such nasty and ill-bred remarks that fly all over the town and are enough to ruin a man's reputation and drive half his patients away.

Many sad complaints of such and similar nature were uttered by dentists that visited the first Dental Congress held in this country in July of last year in Nozni-Novgorod at the time of the great Exhibition. Only about 60 attended the Congress, but still a few important matters, scientific and others relating to the social and professional position of dentists were discussed. The next Congress was fixed for July, 1899, to take place in Moscow, when a greater number may be expected to attend and better results obtained. We may safely say that since last year Russian dentists have entered upon a new path, and may they well succeed.

British Journal of Dental Science.

LONDON, DECEMBER 1, 1897.

THE SEMI-CENTENARY OF THE INTRODUCTION OF CHLOROFORM.

On the 18th of last month the Society of Anæsthetists held a *Conversazione* to celebrate the fiftieth anniversary of the introduction of Chloroform by Sir James Simpson. The oration was delivered by Dr. DUDLEY BUXTON, and it could not have been placed in more able hands. Dr. BUXTON in speaking of anæsthesia in general remarked that to appreciate to the full its blessed effects one should have lived before 1846. Before that time, surgical operations were a terror both to operators and to patients. Dr. ABERNETHY used to remark that on going to the operating theatre he felt like a man going to be hanged; CHESELDEN used to turn sick, and LISTON used to keep awake at night thinking with agony and apprehension of the operation he was about to perform on the morrow. The frightful yellings of the wretched patients were accompanied often by their frenzied struggles to escape from the torture, and the efforts of several assistants were frequently required to hold the sufferer down while the necessary work was done. After touching on the "animal magnetism" introduced by Mesmer a hundred and fifty years ago, Dr. BUXTON then brought his hearers down to the time when Morton first used Ether, though we think we are correct when we affirm that the credit of the actual discovery is due to LONG. Furthermore, it is asserted that JACKSON gave the prescription to MORTON, who presented it to the Massachusetts General Hospital, claiming it as his own discovery. However that may be it is certain that the use of Ether after a while was discontinued owing mainly to

its being badly given, excitement and struggling being induced. Surgeons were therefore often afraid of using it, as the struggles of the patient were apt to cause a fatal wound if the knife were used near a vital part. Deaths also occurred. SIMPSON, however, hailed the advent of this anæsthetic, and the first child born while the mother was under its influence was named Saint Anæsthesia.

Fifty years ago Sir JAMES—then Dr.—SIMPSON received a sample of chloroform from the chemists, Messrs. Duncan and Flockhart of Edinburgh. He with Drs. MATTHEWS DUNCAN and KEITH had been conducting experiments by inhaling various vapours. Dr. SIMPSON after having proved the anæsthetic effects of the vapour upon himself, then tried it upon his patients with the greatest success. He operated upon his first patient under the anæsthetic on November 10th, 1847, and shortly afterwards published his famous pamphlet on the subject. This called forth a whole shoal of pamphlets trying to prove that chloroform was an enemy to mankind and contrary to Holy Writ. In spite of this the new anæsthetic rapidly grew in public favour, and has maintained the lead ever since. SIMPSON's practice was based on clinical results, he offered no scientific explanation. His method was to watch the respiration; he disregarded the pulse although he believed in the action of chloroform upon the heart. He had one death, an account of which he immediately published, attributing the death to failure of the action of the heart. He recognised two forms in which death might take place, asphyxia and syncope. SNOW approached the subject from a more scientific standpoint; he experimented upon the lower animals under test conditions, thus supplementing SIMPSON's clinical experiences by scientific tests. CLOVER came next, and made many improvements in apparatus. A committee appointed in 1864 to investigate the subject recommended as the outcome of their deliberations the use of the mixture of Alcohol, Chloroform and Ether known as the A. C. E. mixture. The late Sir B. W. RICHARDSON did good work in the field of anæsthetics, although his ambition to discover some means by

which the part to be operated upon might be made insensible without general anæsthesia being induced, was never realised. The first and second Hyderabad Commissions, made possible by the munificence of the Nizam of Hyderabad, have called forth many heated discussions, but otherwise have marked no great material advance upon our former knowledge. His own contributions to the science of anæsthetics Dr. BUXTON touched upon with becoming modesty.

Dr. BUXTON, in summing up, was obliged to admit that in spite of fifty years' experience the mortality from chloroform is not less than it was. His reasons for this are, familiarity breeding carelessness, and want of experience. Although chloroform is a great friend, it must ever be regarded as a perilous drug. The empiric works by rule of thumb, and possesses a courage born of ignorance. The scientific anæsthetist should be highly cultured; fearless, but never tempted to sin against knowledge, and always careful to study each individual case as it comes. We do not countenance its use in dental practice, but we certainly agree with Dr. BUXTON that wherever it is used it should be administered with the greatest precaution, and by those who have been scientifically trained in its administration.

CREOSOTE TAKEN INTERNALLY PREVENTS DENTAL CARIES.
—This is the opinion of Winkler (*Intern. Med. Mag.*) who is convinced that while bacteria are present in all dental cavities and are the direct cause of decay in some cases, the primary cause in a majority of instances lies in a morbid state of the system, which gives into the mouth perverted secretions. The destruction of dental tissue by corrosive excretions from the gingival borders is at once arrested by the frequently repeated use of creosote in minute doses, covering a period of from one to three weeks. In other cases the teeth are affected by a decay which is characterised by a very light brown or chalky white colour and by rapid progress. The treatment here is not so well defined as in the first group, but the salts of mercury or potassium, and

of calcium, with charcoal, creosote, etc., are the most potent ; in the third class, due to acid excreting bacteria which are lodged in sheltering localities about the teeth, operative interference is the only treatment. Cleanliness of the teeth and mouth, and, when the presence of acid prevails, the use of milk of magnesia, especially at night on retiring, is efficient in preventing decay. Winkler is persuaded that more than fifty per cent. of dental cases are absolutely preventable by medicines internally administered. We consider that systemic remedies play their part to a certain extent in counteracting caries, especially in those cases where decay occurs round the gum margins. But that fifty per cent. are preventable by medicines given internally is a rash statement and requires corroboration. Our experience leads us to believe that internal remedies, especially acid tonics, do the teeth an immensity of harm. We should much like to know how Dr. Winkler has proved that a three weeks use of creasote has arrested dental caries, and how long the patient continues immune.

TO ALLAY THE PAIN OF ACUTE PULPITIS.—The following prescription is recommended for the above :—

R Lini aconiti... ...(B.P)
 Chloroformi ... aa f 3 iij.
 Tr. capsici ... f 3 j.
 Tr. pyrethri,
 Ol. caryophylli,
 Pulv. camphoræ...aa 3 ss.

M. Sig.: A few drops on cotton to be placed in the cavity.

SELF-LAUDATION.—We have a proverb that “self-praise is no recommendation,” but the public is often disposed to take a man at his own valuation. A Mr. Edward Davis is seemingly not over modest with regard to his professional attainments, for as a proof that he was entrusted with the care of the mouths of the mighty in the laud, he informed his

patient, Mr. Cohen, that he made teeth for the aristocracy and for prize fighters. Presumably these gentry subject their teeth to unusual trials, perhaps the one class at table and the other in the prize ring. Mr. Cohen therefore submitted his mouth to Mr. Davis, who made him some teeth. In spite of his dental skill, the teeth made by Davis were unsatisfactory to Mr. Cohen who found himself most comfortable when the teeth were wrapped up in his handkerchief. On complaining to the favourite of the aristocracy he was informed that any complaint of his work was monstrous, as he was the Napoleon of Dentists. This ought to have been sufficient to convince Mr. Cohen that his teeth were satisfactory, but instead of its having that effect, the refractory patient replied, "I do not know about your being Napoleon, but I know you have made a Waterloo of my mouth." We all know that Waterloo was a sanguinary spectacle, and changed the face of Europe, perhaps Mr. Davis's operations were of a similar character. The case came before Judge Bacon (a curious name, by the way, to arbitrate on a semitic dispute), and the result was that Napoleon will have another chance of repairing the disaster.

A SUBSTITUTE FOR ARTICULATING PAPER.—The following may be used for articulating in default of the usual paper. Take a little thin paper, wet the finger with a little alcohol or water, and rub on a little polishing rouge. This dries quickly, and takes but a few moments' time to prepare.

DENTIST APPOINTED TO THE CENTRAL LONDON OPHTHAALMIC SCHOOL.—At a recent meeting of the Board of Management of the Hanwell Schools the House Committee reported that it appeared to them desirable that the children in the Ophthalmic department should have the benefit of dental treatment, and they accordingly recommended that Mr. Spokes should be appointed as dentist to the Ophthalmic school, at a salary of £30 per annum, and, further, that the

necessary apparatus should be ordered, and Mr. Spokes allowed to engage a qualified assistant to carry out the work under his supervision. The recommendation was adopted. Mr. Spokes has been Dentist to the Hanwell Schools for some years, and we are glad to see that his work is appreciated and has been extended to the children of the ophthalmic department.

REMOVAL OF TEETH FROM RUBBER PLATES BY BOILING.

—Instead of holding the plate over a gas-jet until the teeth can be prised off, unpleasant odours may be avoided by boiling the plate for a few moments, when the rubber will be found yielding, and by grasping it with the pliers the rubber may be sprung from the teeth, and a few repetitions will complete matters.

POLISHING INSTRUMENTS.—Place a small quantity of oxide of zinc on a piece of thick spongy leather and rub the instrument on it, when it will soon take on a fine polish.

THE CARE OF THE EYES.—The dentist's eyes are a very precious part of his anatomy, and should be treated with every care. The following rules taken from the *Pacific Medical Record* seems to us to be sensible and helpful :—

Avoid reading and study by poor light.

Light should come from the side, and not from the back or from the front.

Do not read or study while suffering great bodily fatigue or during recovery from illness.

Do not read while lying down.

Do not use the eyes too long at a time for near work, but give them occasional periods of rest.

Reading and study should be done systematically.

During study avoid the stooping position, or whatever tends to produce congestion of the head and face.

Select well-printed books.

Correct errors of refraction with proper glasses.

Avoid bad hygienic conditions and the use of alcohol and tobacco.

Take sufficient exercise in the open air.

Let the physical keep pace with the mental culture, for asthenopia is most usually observed in those who are lacking in physical development.

TO DUPLICATE MODELS.—Dr. Templeton in the *Dental Review* gives the following method for duplicating models and impressions :—Take printer's roller composition, heat in a water bath until melted. Grease the model slightly with lard, and place it the same as if to mould a metal die, cover with a metal ring (a tin can opened at both ends will do), and pour the melted composition over the model. Let this stand over night. By morning the material is hardened and the model can be withdrawn. The composition being elastic it retains its shape, and a hundred models may be poured if necessary. Printer's ink rolls are made from glue and molasses.

LIQUID DENTIFRICE.—The following dentifrice water is pleasant and effectual :—

Thymol	...	...	ʒj.
Ol. menth. pip....	...	...	ʒj.
Ol. eucalypti	...	...	ʒiss.
Ol. limonis	...	...	ʒiss.
Chloroformi	...	...	ʒv.
Glycerini	...	...	ʒj.
Spt. rectificat. ad	...	...	ʒxv.

It may be coloured with a small crystal of magenta dye, and if required more astringent, an ounce of Tincture of Rhatany may be added. The glycerine should be added last.

CATAPHORESIS IN DENTISTRY.—Dr. J. O. Ely sums up the following conclusions as the result of three hundred operations under cataphoresis :—

As the result of 300 operations and sixteen months experience with cataphoresis, the writer is convinced that in the hands of the careful operator it is one of the greatest blessings ever given to the profession ; that it can be applied to 90 per cent. of sensitive cavities, and that it is successful in 95 per cent. of the cases in which it is properly applied.

That there is no destruction of tooth or pulp tissue.

That there is no danger of injury to gum tissue if it is properly insulated and a high voltage is not used.

That fifteen volts is sufficient to produce the required results.

That properly performed, the production of partial or complete anæsthesia of tooth or pulp should be accomplished without pain or discomfort to the patient in any way.

That all patients without exception have been more than willing to pay the additional cost when the length of operation was increased by the use of cataphoresis.

That it is of great benefit where it is necessary to remove or destroy pulp, for by its use the pulp can be removed absolutely without pain.

That as a result of its use patients lose completely their fear of dental operations.

That from our professional life the nervous strain is almost entirely eliminated.

That the proper preparation of cavities is no longer prevented by nervous fears or suffering of patient.

Lastly, that dread of the operations being removed from minds of patients, necessary work is no longer neglected by them, and teeth will be kept in much better condition than at present.

RUBBER-DAM AS A MATRIX FOR OSTEOPLASTIC FILLINGS :
—In adjoining interstitial cavities when it is desirable to fill them with only one mixing of the cement, a neat matrix may be found in a narrow ribbon of rubber dam drawn taut over the adjacent tooth until the cavity is filled, and then reversed over the new filling until the second cavity is filled. After

the fillings are sufficiently hard, the strip may be trimmed quite close with a little tension while cutting, and what remains will act as a separator, so that at the next sitting there will be no trouble in properly finishing the filling. It may be added that the patient can very often hold the strip in place. So says a writer in the *Ohio Dental Journal*. We consider that a thin polishing strip or a piece of the cloth used for architect's drawings and vaselined are both better, as the elasticity of the rubber dam would be apt to disarrange the soft filling.

A NEW ARGUMENT AGAINST BRIDGE-WORK.—At a Dental Society meeting lately held in America, Dr. E. P. Beadles, of Danville, said there were dangers in bridge-work. He was confident that he had killed one man by furnishing him with two hundred and fifty dollars' worth of bridge-work. The man in question was addicted to the free use of alcoholic stimulants and was a great gormandizer. While the preparation for the work of his mouth was going on he insisted upon using spirits to enable him to endure the pain, and was so successful that the next day he had no recollection of the operation. However, the new appliance gave him so much pleasure in eating that he commenced a course of gormandising which, in less than a month, put him in his grave.

Horrible !

CATAPHORESIS UNSATISFACTORY FOR OBTUNDING SENSITIVE DENTINE.—Dr. Hungerford finds that cataphoresis is very satisfactory in obtunding the gum where you desire to lance an alveolar abscess in cases where a tooth has been extracted and the remaining socket is very painful to the touch and does not heal readily ; and if you have an exposed pulp, you can apply your cataphoresis to that pulp and obtund it in a very short time. For the preparation of sensitive cavities, in obtunding sensitive dentine, he has found that it is very slow and somewhat uncertain.

In applying it to a tooth where there is very sensitive dentine and a small cavity, you have to drive it through so much of the body of the tooth structure that it takes anywhere from fifteen minutes to three-quarters of an hour before the cocaine is really carried into the body of the tooth. Therefore he has discarded cataphoresis in the preparation of sensitive cavities. He has had very unsatisfactory results with it in applying it to a tooth that was very sensitive, where there was sensitive dentine around the neck of the tooth, where there was a very small, shallow, saucer-shaped cavity, and a large body of the tooth-structure to penetrate. The tooth-substance is such an extremely bad conductor it takes a long time to work its way through the dentine, and needs a greater amount of current and a greater length of time.

He finds great use for it in many ways ; perhaps on an average of once a week in his office he has occasion to use his outfit. He does not use it any more for obtunding sensitive dentine, however, though he does not believe that any detrimental or dangerous effects follow.

FORMULA FOR A GOOD GOLD SOLDER:—

7½ dwts. of coin gold ;
35 grains copper ;
25 ,, silver ;
12 ,, brass pins.

TREATMENT OF WHITE SPOTS.—Cases of white spots of decay on front teeth treated by burnishing such spots with a steel burnisher moistened with pyrozone will prevent recurrence of the decay and save the teeth.—*Dr. Green, Cosmos.*

THE NATIONAL DENTAL HOSPITAL.—The Annual Students' Dinner was held on the 26th ult. We hope to publish a fuller report in our next issue. Mr. Roughton made an excellent chairman, and his announcement that out of fourteen students sent up this year, thirteen had passed, justified the good spirits prevailing at the Dinner.

Reviews.

THE PATENT OFFICE.

The Patent Laws of this country make no provision for an official search as regards novelty, and all Patents are taken out at the risk of the inventors. It is therefore incumbent on any person desiring to obtain a valid Patent for an invention either to cause a search to be made, or himself to make a search, as to the novelty of his invention. By omitting such a search, many a patentee has found, after paying his fees, that his treasured Patent is worthless, because it has been anticipated. Of course, in this case the first applicant or patentee possesses all the Patent rights, and the second one has absolutely no rights at all.

A complete and exhaustive search through published Specifications of Patents is a task of considerable difficulty, even for the trained expert with all the resources of the Patent Office Library, for at this moment the number of printed Specifications of Patents is well over a quarter of a million.

A series of Indexes and Abridgments has been published by the Patent Office as a guide to the Specifications themselves, and is freely distributed to the principal public libraries in this country. The abridgments give a general description of the nature of every invention patented, and the object of their publication is to enable the would-be patentee to carry out, at any rate in some cases, what may be termed a *fireside search*. By the study of these abridgments he will generally be able to select certain inventions which have already been patented, and which resemble his own invention sufficiently to render it desirable for him to examine their Specifications in detail. A printed copy of any Specification can be obtained at an inclusive price of 8d., through any Post Office, by a special Postcard, (Patents Form C1). The Abridgements are published in volumes, each volume dealing with one particular class of inventions, such as "Steam Engines," and "Cooking and Kitchen Appliances, &c.," for a period of some years. The volumes up to 1877 are not illustrated, and all the subjects have not yet been dealt with, but from 1877 onwards a systematic series, very fully illustrated, is now in course of publication at a uniform price of one shilling per volume (including inland postage.)

The volumes for the periods from 1877 to 1883 and from 1884 to 1888 have been completed, those for the periods from 1889 to 1892 and from 1893 to 1896 are in active preparation, and later volumes will follow in due course. For the purposes of the Abridgments the whole field of invention has been divided into 146 "Abridgment Classes," and the list of these Classes in itself shows what an enormous field this is, and how greatly its products vary. Every triumph of applied science, such as the locomotive, the telegraph, and the dynamo, is to be found here, and every one of our great national manufactures and industries finds its appointed place. Each volume contains abridged descriptions of the inventions falling under one of the 146 Classes during the period of which it treats (illustrated by diagrams or drawings wherever possible), a detailed Index to the inventions according to their subject-matter, and an Index to the names of patentees or applicants.

For the use of those who desire to make a careful study of Patents, the Patent Office also published an "Abridgment-Class and Index Key" (price 1s., parcel postage 5d.) which shows in detail how inventions are classified, abridged, and indexed throughout its publications.

Perhaps the most interesting of these publications is the "Abridgment of Specifications" in Class 81, which deals with Medicine, Surgery, and Dentistry for the period 1884-88.

The Commercial Uses of Coal Gas. By Thomas Fletcher, F.C.S. Fletcher, Russell & Co., Ltd., Warrington, Manchester and London.

The author is of course well known to our readers, as one who has done much by his practical work and writings to obtain the best results from using Coal Gas. The present volume, indeed, is a supplement to "Coal Gas as a Fuel," and contains a collection of articles upon a large variety of subjects from "The uses of Coal Gas to the Burglar," to "Beer Bottling" and "Bacon Drying"! There is much of interest on every page, but our readers may probably prefer the observations on "Flame Contact" and the "Use of the Blowpipe."

Abstracts of British & Foreign Journals.

A CASE OF SARCOMA OF THE UPPER JAW IN A WOMAN TWENTY YEARS OF AGE ; EXCISION ; RECOVERY.

(Under the care of Mr. Clement Lucas).

Myeloid sarcoma of the upper jaw in young adults is by no means rare, and its starting point is almost always the alveolar border of the bone. In a very large proportion of the cases there has been extensive caries of the teeth on the affected side, and the association is sufficiently constant to justify the assumption that there is a causal relation between the caries and the sarcoma. In the following case the caries of the teeth had been extensive and of long duration.

A woman, aged twenty years, was admitted into Guy's Hospital on May 19th, 1897, complaining of a swelling in the mouth. The patient's health had always been good, but she had for years suffered much from her teeth. About last Christmas (1896) she noticed that her right cheek was becoming more prominent, and about three weeks before her admission to the hospital she found that the gum of the upper jaw on the right side was swollen and this swelling had increased rapidly. On admission it was seen that the alveolar border of the right superior maxillary bone was the seat of a swelling extending from the middle line outwards for about one and a inches. The anterior part of the alveolar process was pushed forwards, obliterating the naso-labial fold, and a great portion of the process was loose, the right central and lateral incisor teeth moving with it. The growth extended also backwards on to the hard palate for about an inch. The surface of the growth was uneven, firm and elastic to the touch, and pink in colour ; no egg-shell crackling could be made out. The right cheek was somewhat more prominent than the left. On May 24th the patient was anæsthetised and an incision was made through the upper lip and round the right ala of the nose ; the lip and cheek were dissected off the right superior maxilla and the bone was sawn through just to the right of the septum and also immediately below the orbit and at its attachment to the malar bone. The superior maxilla was then wrenched away, leaving the orbital plate, and the hæmorrhage having been stopped the wound was dusted with iodoform and tannin, the lip was drawn together with two harelip pins,

and the edges of the incision were sutured with horsehair. The whole was then dressed with a "sealed" dressing of iodoform and collodion on gauze. On examination of the portion of bone removed it was seen to be much softened and infiltrated by the growth; when examined microscopically it was found to be a giant-celled sarcoma. The mouth was washed out frequently with warm water and gargled with a solution of resorcin (ten grains to the ounce). On the 27th the sealed dressing was taken off and all the stitches were removed together with the harelip pins. The part was resealed with iodoform and collodion painted on sal alembroth gauze. The dressing was finally removed on June 4th, when it was found that the face incisions had all healed by first intention. The patient left the hospital on June 6th convalescent.—*Lancet*.

MORTON'S ACCOUNT OF HIS FIRST EXPERIMENT WITH ETHER.

"Taking my tube and flask, I shut myself in my room, seated myself in the operating chair, and commenced inhaling. I found the ether so strong that it practically suffocated me, but produced no decided effect. I then saturated my handkerchief and inhaled it from that. I looked at my watch and soon lost consciousness. As I recovered I felt a numbness in my limbs and a sensation like nightmare, and would have given the world for someone to come and arouse me. I thought for a moment I should die in that state, and that the world would only pity or ridicule my folly. At length I felt a slight tingling of the blood in the end of my third finger, and made an effort to press it with my thumb, but without success. At a second effort I touched it, but there seemed to be no sensation. I gradually raised my arm and pinched my thigh, but I could see that the sensation was imperfect. I attempted to rise from my chair, but fell back. Immediately looked at my watch, and found that I had been insensible between seven and eight minutes."

"I had become much excited (he says), and had determined that I would not leave the office until I had seen something more of the power of this new agent. Twilight came on, but in my present state I felt it to be impossible to go home to my family. As the evening wore away, my anxiety increased. The hour had long passed when it was usual for patients to

call. I had just resolved to inhale the ether again and have a tooth extracted under its influence, when a feeble ring was heard at the door. Making a motion to one of my assistants who started to answer the bell, I hastened myself to the door, where I found a man with his face bound up, who seemed to be suffering extremely. 'Dr.,' said he, 'I have a dreadful tooth, but it is so sore I cannot summon courage to have it pulled. Can't you mesmerize me?' I need not say that my heart bounded at this question, and that I found it difficult to control my feelings; but putting a great constraint on myself, I expressed my sympathy for the man, and invited him to walk into the office. There were no instruments in sight to terrify him, and the ether was close at hand, every arrangement having previously made in the hope that a similar case might occur. I examined the tooth, and in the most encouraging manner told the poor sufferer that I had something better than mesmerism, by means of which I could take out his tooth without giving him pain. He gladly consented, and saturating my handkerchief with ether, I gave it to him to inhale. He became unconscious almost immediately. It was dark. Dr. Hayden held the lamp. My assistants were trembling with excitement, apprehending the usual prolonged scream from the patient, while I extracted a firmly rooted bicuspid tooth. I was so much agitated that I came near throwing the instrument out of the window. But now came a terrible reaction. The wrenching of the tooth had failed to rouse him in the slightest degree. Instead of the quick start of relief with which a patient usually leaves the operating chair the moment the instruments are withdrawn, he remained still and motionless as if already in the embrace of death. The terrible thought flashed through my mind that he might be dead—that in my zeal to test my new theory I might have gone too far and sacrificed a human life. With the rapidity of lightning my mind ran through the whole process of my investigations up to the present hour. I trembled under the sense of my responsibility to my Maker and to my fellow-men. The question, Can I restore him to consciousness? startled me into action. I seized a glass of water and dashed it into the man's face. The result proved most happy. He recovered in a minute, and knew nothing of what had occurred. Seeing us all standing around, he appeared bewildered. I instantly, in as calm a tone as I could command, asked, 'Are you ready to have your tooth extracted?' 'Yes,' he answered, in a hesitating voice. 'It is all over,' I

said, pointing to a decayed tooth on the floor. 'No!' he shouted, leaping from the chair.

The name of the man who thus for the first time underwent an operation under anæsthesia induced by ether was Eben Frost."

Practitioner.

SEPARATING TEETH.

In a discussion upon the above subject, Dr. H. W. Morgan said: In wedging teeth apart, it has been the almost universal practice for the last ten years to rely on rubber. The improper use of rubber should be condemned. No one familiar with its action or its use as a means for retaining space, would for a moment think of leaving rubber between the teeth longer than from six to ten hours, and it is an inhuman and barbarous practice to leave rubber remain between the teeth for weeks at a time. Six hours in 90 per cent. of the cases that come to us is sufficiently long. From six days to two weeks later the teeth should be retained in place to permit all inflammatory action to subside. In getting the cavity slightly excavated or open sufficient to retain gutta-percha, the gutta-percha should not extend but slightly over the margin of the cavity, and in working down and crowding the gum away, in adjusting the rubber for the purpose of making the separation, it should not be carried far beyond the point of contact of the tooth if it would crowd the gums away and injure them. The long wearing of rubber excites inflammatory action and brings about the trouble. Packing the gutta-percha slightly over the margin of the cavity is all that is necessary to hold back, and when the rubber dam is adjusted, the gum is carried back and the rest of the operation is made as usual.

Dr. B. Holly Smith, on the same subject, remarked: Dr. Morgan has condemned the use of rubber for the purpose of separating teeth. I do not think rubber should be used to separate teeth, and there is no need of using it and having the patient come back at the end of six hours to change the rubber when other things can be used, and much more satisfactorily. Cotton with silk ligatures can be kept in position. I differ with Dr. Johnson about using gutta-percha between teeth for separation and allowing it to remain for a long time because of the very thing he said, namely, to avoid pressing away of the gum and the destruction of the contour of the gum in the inter-proximate space.

American Journal of Dental Science.

THE IMPLANTATION OF STERILIZED ROOTS OF THE TEETH OF BEASTS, FOR CARRYING ARTIFICIAL CROWNS.

By W. E. WALKER, D.D.S., Pass Christian, Miss.

Since the introduction of the operation of implantation by Dr. Wm. J. Younger, in 1885, various substitutes for the roots of human teeth have been suggested, for carrying artificial crowns—as lead capsules, porcelain teeth, double staples of metal, etc. The literature on this subject does not indicate any marked degree of success with any of the manufactured roots.

As it is often a difficult matter to obtain a healthy root of a human tooth, suitable for this purpose, it has occurred to me that one might utilize the roots of the teeth of beasts, which are easily obtained from the slaughter-pen and which are, as a rule, free from disease, requiring, though, thorough sterilization. Before implanting they can be surmounted with Logan, or other crowns, a cast made of the mouth and bandage adjusted to cast by Dr. Jack's method, which I have found the most satisfactory.

While I have not found any beast's teeth with roots very closely corresponding to those of human molars, this is immaterial, as the socket from which a molar has been removed requires remodelling, even to receive a human molar, for the roots of no two human molars are alike, and less cutting is necessary in using the large single root of a bovine central incisor; all that is demanded being the removal of the septum dividing the alveoli of the socket.

Ohio Dental Journal.

MISTAKES.

One of the great mistakes, I think, is the crowning of teeth that ought to be filled. I have seen this done too frequently. Another mistake that I have often witnessed, and I presume others have, is to attempt to disinfect a putrescent pulp canal in two hours. This is a mistake that is frequently made. I think it is a mistake to fill all pulp canals immediately. I have always thought so ever since I have been in the practice of dentistry, but there are men who differ with me, who think to the contrary, but that does not change my mind in the slightest degree.

J. G. Reid, Review.

Reports of Societies.

ODONTOLOGICAL SOCIETY OF GREAT BRITAIN.

Ordinary Monthly Meeting, November 1, 1897. Mr. W. E. Harding, L.D.S., President, in the chair.

The Secretary read the minutes of the last meeting, which were confirmed.

Mr. C. W. Glassington, Mr. A. T. Hilder, and Mr. L. E. Browne signed the Obligation Book, and were admitted members of the Society.

The following gentlemen were then ballotted for and unanimously elected members of the Society. As resident members :—W. H. Dolamore, L.R.C.P., M.R.C.S., L.D.S. Eng., 37, Queen Anne Street, W.; Stephen Keele, L.D.S. Eng., 16, Highbury Place, N. As non-resident members :—Norris Snell, L.D.S. Eng., 11, Museum Street, Morwich; Arthur W. Turton, L.D.S. Eng., Belgravia, Goole, Yorks.

LIBRARIAN'S REPORT.

The Librarian (Mr. W. A. Maggs) announced the receipt of the following donations : "Dental Surgery for Medical Practitioners," by A. W. Barrett, M.B., by the Author; "Some Methods and Appliances in Operative and Mechanical Dentistry," by R. P. Lennox, by Messrs. C. Ash and Sons, the *Calendar of the Royal College of Surgeons*, 1897; *Transactions of the New York Odontological Society*, 1896, and the "Year Book of the United States Department of Agriculture," 1896. He also reported that 'Tomes' "Dental Surgery" fourth edition, had been added to the library.

CURATOR'S REPORT.

The Curator (Mr. Storer Bennett) presented, on behalf of Mr. Charters White, a specimen of amateur dentistry which was made some years ago, and which Mr. White had had in his possession for a long time. It consisted of a small bone plate with two crudely carved teeth representing lower central incisors. These teeth and the two natural lower lateral incisors had been bound together by a piece of silver wire. The specimen had evidently been worn for a long time, because there was a large piece of tartar beneath the little artificial plate, lying between it and the gum.

CASUAL COMMUNICATIONS.

Mr. H. L. ALBERT asked the Society to accept two little teeth which were removed from a child 12 months old on account of the inner cusp lacerating the tongue. They were two maxillary deciduous incisors with a sort of inner cusp very largely developed. The teeth were perfectly sound, and so far as he could trace, the influence of heredity had nothing to do with the matter.

Mr. HARRY BALDWIN thought Mr. Albert would agree with him that the cusps were due to elevation of the cingulum, which was the usual means by which fresh cusps were produced.

Mr. BRUNTON exhibited a tooth (right maxillary second bicuspid) which he found it necessary to extract owing to its crowded position. As it was rather a difficult matter, before attempting the extraction of it he applied two rubber rings, and the rubber rings were exactly in the position on the tooth exhibited which they occupied when the tooth was extracted. One ring crept up nearly to the apex of the root, and thereby loosened the tooth to such an extent that he was able to remove it quite easily. It was a practice he had used for deciduous teeth, but he had never attempted it before for permanent teeth. He also exhibited two pairs of gold pluggers which he found useful, one especially for matrix work and the other for surface work; and a pair of burnishers, right and left. He also exhibited two pairs of pliers for carrying amalgam to the cavity, which he said were also useful for carrying gold cylinders. Another exhibit he showed was a small instrument for carrying sponges, with a slide which worked up and down to adjust it to the size of wheel required. He also exhibited a simple method of using silk between teeth by cutting a notch at the end of a tooth-brush. Another interesting object shown by him was a lamp used for purifying the air, but which could also be used for annealing gold. It was an ordinary glass spirit lamp filled with methyl alcohol. A sheet of platina foil, crushed together in the centre and drawn up to a point at the bottom, was placed over the wick of the lamp and worked up to form a ball. The lamp was lighted and the flame allowed to heat the platina, and on the flame being put out the lamp continued to glow until the spirit was exhausted. The slow combustion of methyl alcohol under the influence of platinum produces formaldehyde, which acts as a powerful disinfectant.

Mr. MATHESON asked, with regard to the tooth exhibited

with the rubber rings, whether there was a normal degree of firmness about the tooth, or whether it was loose to begin with. He also asked whether the rings crept up entirely of their own accord, or whether Mr. Brunton helped them up, and also whether a great deal of irritation was created.

Mr. HARRY BALDWIN said that some time ago a young girl came to him for the purpose of having her teeth regulated, and the complaint about previous treatment was that the upper central, which was being acted upon, had become exceedingly loose and painful. When he examined the case he was very much puzzled, because the tooth was still alive, and yet the gum all round the tooth was exceedingly boggy, and pus was coming down freely between the gum and the tooth. On feeling very high up with a hooked instrument under the gum he felt something like india-rubber, and he succeeded in hauling down from near the apex of the root one of those small india-rubber rings which were used for regulation purposes. It had been overlooked by the previous dentist who had had charge of the case, and had very nearly caused the loss of the tooth. After the ring was removed the tooth gradually got tight and well again. Mr. Baldwin also exhibited two burnishers which were very much thinner than those exhibited by Mr. Brunton, and being perfectly smooth on both sides could be safely insinuated between teeth which were close together.

Mr. STORER BENNETT said he did not quite catch the reason given for adopting the method of extraction by elastic ligature; but a case occurred to him some years ago at the Dental Hospital, of a man who was a bleeder, and whenever he injured himself in the smallest degree the hæmorrhage was only controlled with the greatest difficulty. It was absolutely necessary to extract a tooth which was causing much trouble to his tongue, and it therefore occurred to Mr. Bennett that by the slow ulceration of the gum and absorption of the bone, caused by the use of an india-rubber band, the tooth might be extracted without any hæmorrhage. He resorted to that method, but it took a good many days to get the tooth out, and caused a good deal of pain to the patient. The question had been asked by one or two members as to the length of time the process took, and whether it caused any pain. In the case he mentioned it had certainly caused a great deal of pain, and as far as he recollected, it took ten or twelve days. Undoubtedly, in cases where very severe hæmorrhage was feared, and where one knew it would

be very difficult to control the hæmorrhage, that method of operation would be of extreme value.

Mr. RUSHTON mentioned a case in which four teeth were lost from being ligatured by india-rubber. He also read a short time ago in *L'Odontologie*, a case in which two teeth were lost in the same way. He once tried an elastic ligature on a bicuspid of his own, and although he only put it on in the morning, the pain was so great that he had to take it off in the afternoon. The method, he thought, might be adopted in cases where there was an ingrowing lower bicuspid, and but little room to extract the tooth without causing damage to its neighbours. In such a case a rubber ligature might be of distinct advantage in loosening the tooth and creating a little more space.

Mr. BRUNTON, in reply, said the tooth was in such a position that it would have been a difficult matter to remove it. The bicuspid was not properly erupted at the time—the crown was just through the gum and turned towards the palate. The first bicuspid and the first molar were close together. The second bicuspid was lying towards the palate, and he could not get anything between the teeth. He saw it was going to be rather a difficult matter to remove it, and so put the rings on. He put one ring on one day and the other on the next, and he pushed the rings well up with a burnisher. He hoped that one of the rings would find its way up and loosen the tooth, and it did most effectually. The patient had to go away soon after he applied the rings, and she did not return for three weeks, and when she returned she told him that she had had a great deal of pain, but he gathered that it was not unbearable.

Mr. W. A. MAGGS showed a fragment of the left half of a human mandible, with a tooth lying embedded horizontally in the bone. The ramus and the alveolar portion, as far forwards as the socket of the left canine, were in a state of good preservation. The specimen showed the sockets of the second premolar and the first molar, and the second molar *in situ*. The unerupted tooth was fully developed, with the apex of the root in contact with the canine socket, the crown immediately above the mental foramen, and the mesial surface placed anteriorly.

Mr. Maggs said that in his opinion the embedded tooth was the first premolar. He regretted he was unable to give any particulars as to where the mandible was found, and he expressed the view that it was probably that of a young adult,

about twenty-five years of age. He formed this opinion from the well-marked surfaces for the attachment of muscles, but the age of the mandible was open to discussion, and judging alone from the molar tooth it indicated that of an older person.

Mr. CARL SCHELLING read the notes of the following case :—

Mr. President and Gentlemen,—In conjunction with this communication which I have the honour of bringing before you, I show a plaster model of an appliance made by me at the earnest entreaty of a lady who very greatly desired to appear round and plump of face as in years long gone by. She first consulted Mr. Tomes, who suggested that I might find the case amusing and instructive, and so I took it in hand.

She was wearing in connection with her upper jaw, five things, namely, a small piece of a vulcanite upper case, with no bands, having a porcelain incisor upon it; two lateral pieces of the same plate; and two very large rolls of paper, first folded and then rolled into flat spirals like small Catherine wheels.

She was very averse to my unpacking her mouth of all its varied contents for fear they might be mislaid; but at length I got all five out, and after excising some very carious incisors, and filling some others, took an impression for a special tray. At the next visit I obtained a plaster impression of the jaw and part of the inside of the cheeks. Subsequently I tried in a plate in the usual manner, and added large masses of wax to it so as to fill each cheek as I thought they should be filled. The case was vulcanised, and the plumpers made hollow, but when I put it in on her next visit, my patient, more in sorrow than in anger, pointed out such faults in my artistic perception of the latent beauties of her face that I cut off the greater part of my plumpers and fixing on two large masses of composition, approximately moulded to the desired shape, sent her home to perfect my attempts before her own mirror.

After she had worn these for a few days I reproduced them in hollow vulcanite. I shall never forget her look of intense gratification when she caught sight of herself in my chimney glass, and though we may not all share her admiration, I ventured to bring this model here to-night in the hope that it might prove amusing, if not instructive to the members of the Odontological Society.

Mr. ROUGHTON read the notes of the following case of acute suppuration of the mandible, followed by pyæmia and death :—

L. N., a boy aged $7\frac{1}{2}$ years, sat in a draught at school on October 1. The same night he complained of pain in the left side of the face. On October 2 he was seen by his doctor, who found the left side of the face swollen, and temperature 105. The gum over the left lower molar region was swollen and tender, but the mouth could not be opened sufficiently to inspect the teeth. On October 3, the condition was unchanged. On October 4, the pain and swelling were less, but temperature still high (103). On October 5, rigors occurred. On October 6 the swelling of the face was less, but had extended to the parts under the jaw as if an alveolar abscess were about to point. Slightly delirious. On October 7 the swelling had extended farther down the neck almost to the clavicle. I saw the boy in the afternoon. After chloroform had been administered I incised the swelling in the neck; no pus was evacuated, but the tissues looked inflamed and as if about to slough. On opening the mouth I found the teeth in the affected part of the jaw healthy, but the first permanent molar was quite loose, and pus welled up around it on making pressure on the gum. I removed the tooth, evacuated the collection of pus and cleared the part as effectually as circumstances permitted. The tooth was quite sound. On October 8, symptoms of peritonitis appeared in the morning, and later in the day there were physical signs of pneumonia. On October 9, the patient died. No *post-mortem* examination was permitted.

Remarks.—This case was at first supposed to be one of alveolar abscess. Subsequent events showed that it was not so. It was evidently a case of acute infective panosteitis followed by phlebitis and general pyæmia. Such cases are common in the long bones (especially the tibia and femur), but as far as I know, very rare in the jaws. It is well known that the disease is produced by pyogenic organisms (usually the staphylococcus pyogenes aureus), but the path of entrance is obscure. Probably the organisms enter the body by some small surface lesion, and are carried by the blood stream to a bone, the vitality of which has been lowered by injury or exposure to cold.

I think this case is worthy of the notice of the Society because it is an uncommon one, and because it serves to

remind us that what is at first regarded as a mere toothache may sometimes turn out to be fatal disease.

Mr. STORER BENNETT said the case was a most interesting one, and, as Mr. Roughton said, served to remind them how serious might be results of what apparently in the beginning was only a very trivial ailment. Mr. Roughton had stated that the case, although at first mistaken for an alveolar abscess, was evidently not of that nature. Without wishing in any way to join issue with Mr. Roughton, he would like to know the grounds on which he arrived at that conclusion. Nothing was said as to the condition of the pulp, but it was very likely, as so often happened in such cases, that the pulp was dead. Mr. Roughton had said that a considerable amount of pus welled up around the tooth when the gum near it was pressed upon, although no pus came from the incisions in the patient's neck. He drew attention to this because it pointed to the fact that the pus was localised round the tooth itself, and had not at that time extended very deeply. The fact of the tooth not being decayed of course was no ground for supposing there was not an alveolar abscess. He also understood Mr. Roughton to say that there was trismus, which was one of the common accompaniments of alveolar abscesses. He did not dispute the diagnosis; but only wished to know the grounds on which it was arrived at.

Mr. GOADBY said he was interested in Mr. Roughton's case, because a short time ago he had a very similar one himself, and he had brought the patient's medical attendant to give the Society some account of the matter. The patient was an old lady suffering from rheumatoid arthritis. She had in her mouth two lower molars and one upper root. The two molars were particularly loose and the gum in a bad condition. The upper root was fairly sound, but both the roots were troubling her, and it was decided to remove them. The patient had heart trouble and various other complications, and it was not thought advisable to give her a general anæsthetic, and they did not care to risk giving her cocaine. They therefore made use of ethyl chloride, and it was particularly on that account that he wished to mention the case. The gum was frozen and the two teeth removed. The instruments were carefully boiled, and sterilized before being used. About a fortnight afterwards it was noticed that the left side of the mouth did not heal and the right did. The first sign was a small black patch which eventually developed into a bad condition, the whole of the gum slough-

ing and laying the bone bare. The old lady, who was very ill, succumbed to sapræmia. Unfortunately, he had not an opportunity of making a cultivation from the case, but thought from the general conditions that the sloughing was probably due to the bacillus of malignant cedema. He had had a similar case some two months previously where he had to deal with a partially erupted third molar, and in which it was necessary to remove part of the alveolus, to extract a second molar in order to give room for the third molar to erupt. He was rather afraid that the case would go wrong. He was extremely careful to make the parts as aseptic as possible, but the patient nevertheless got a good deal of ulceration. He made cultures, but did not get any signs of the bacillus of malignant cedema.

Dr. HICKMAN said the old lady was 69, and had suffered for some years from rheumatoid arthritis. At frequent times she had had attacks of asthma and bronchitis. He first attended her last March. She had mitral regurgitation and a dilated heart. The teeth were giving her a little trouble, and he asked Mr. Gcadby to see the case. They did not care about giving her nitrous oxide, partly because she was so neurotic; her friends did not care for her having general anæsthetics, and cocaine, seeing the condition of her heart, was, he thought, contra-indicated. They therefore tried ethyl chloride. About a fortnight afterwards he noticed that her breath was rather offensive, and on looking at her mouth he found that at the situation of the molar socket there was a slight black patch about the size of a split pea. Previously she had had an attack of senile dementia, and had suffered from sleeplessness. The next day her temperature began to go up, and it ran up to nearly 102° F. The whole of the gum on the inside of the alveolus was black and loose, and completely separated from the jaw. The gum was cut away and pure carbolic acid applied, a saturated solution of Condy being ordered as an injection for the mouth; general tonics and alcohol were also presented. On the next day the outer side of the alveolus sloughed, and she died, not from septic pneumonia, which he rather feared, but either from sapræmia or, possibly, a septicæmic condition. During the fortnight after the extraction of the tooth she would persist in having her windows absolutely closed, which might have been a predisposing cause. He mentioned the case because it seemed quite probable that the ethyl chloride destroyed the vitality

of the tissues, and in an old woman of that age it might have helped to bring about the conditions he had narrated.

Mr. H. L. ALBERT said Mr. Goadby's case was somewhat different from Mr. Roughton's. In the one case the symptoms followed on an operation, but Mr. Roughton's case seemed to be a case of either suppuration under the tooth, as Mr. Storer Bennett suggested, or acute panosteitis. Mr. Goadby's case was undoubtedly due to some septic condition not connected, he should think, with the operation, because he was perfectly sure that nothing Mr. Goadby could have done would have produced that condition. He had seen a case himself in a poor hospital patient who died exactly in the same way, except that she had septic pneumonia.

Mr. F. J. BENNETT thought it might be possible that the freezing of the gum in such an aged and infirm person might go far to lower the vitality of the tissues and render them liable to be attacked by germs.

Mr. ROUGHTON quite admitted the justice of Mr. Storer Bennett's criticisms. It was true he was not in a position to state absolutely that it was not a case of alveolar abscess. Still, the tooth he removed looked to him so much like its normal colour, and the suppuration around the tooth was so diffuse and apparently not in the immediate neighbourhood of the tooth, that he made up his mind at the time, perhaps without sufficient cause, that the tooth really had nothing to do with the suppuration. Of course he was unable to prove it.

The President then delivered an Inaugural Address, which is published on page 1057.

The President having expressed the thanks of the Society to Mr. Charters White for his donation to the museum, and to the members who had contributed casual communications that evening, the Society adjourned until December 6.

LOCKJAW CAUSED BY A TOOTH.

Dr. Sache (*Centralbl. f. Chir.*), reports a case of lockjaw which for four years baffled the skill of several physicians. Dr. Sache found the right superior third molar projected externally in a horizontal direction, pressing against the internal pterygoid muscle, so that the patient was unable to open his mouth. Eight weeks after extraction of tooth patient could open jaws normally.

Dental Digest.

Dental News.

THE EDINBURGH DENTAL STUDENTS' SOCIETY.

The inaugural meeting of the present Session was held on the evening of Monday, November 1st, when the Honorary President, Mr. Francis M. Caird, F.R.C.S., delivered an address bearing on the Art of Dentistry as it existed in the Middle Ages. The causes and treatment of toothache, the methods and instruments employed in extracting teeth at that time, and the question of transplantation of teeth were discussed. Drawings from the works of Ambrose Paré, Fauchard (*Le chirurgien dentiste* 1718), and Heister, were shown; and Mr. W. G. Watson, Dr. Guy, Mr. Lindsay, and the President, Mr. Morris Stewart, in their remarks in speaking to the vote of thanks, added interesting matter to the subject.

There was a large attendance, which included several members of the staff, who are interested in the welfare of the students and their Society, and a number of new students were proposed and seconded for membership.

The "Annual Smoker" will be held on Friday evening, December 3rd, at 7.30, in the Windsor Hotel, and on the Monday following a debate will take place on the vexed question of "Apprenticeship versus Pupilage."

THE DENTAL HOSPITAL OF LONDON.

The Annual Dinner of the Staff and Past and Present Students will be held on Saturday, December 4th, at the Hotel Metropole, (Whitehall Salon), under the Presidency of A. S. Underwood, Esq., M.R.C.S., L.D.S. Gentlemen either now or formerly connected with the Hospital or Medical School, who may through inadvertence not have received special notice, and who may desire to be present, are requested to communicate with the Dean at the Dental Hospital, 40, Leicester Square,

ROYAL COLLEGE OF SURGEONS OF ENGLAND.

The following were the Papers set in the recent Examination for Diploma in Dental Surgery.

Anatomy and Physiology and Surgery.

2 to 4 o'clock, p.m.

N.B.—The Candidate is required to answer at least one of the two questions, both on Anatomy and Physiology, and on Surgery and Pathology.

Anatomy and Physiology.

1. Describe the Nasal Fossa, mentioning the bones by which it is formed, and the fissures and foramina which open into it, as seen in the dry skull.

2. Describe the process of deglutition.

Surgery and Pathology.

1. Give the symptoms which indicate Simple Fracture of a bone. Describe the process of repair.

2. What Cysts may occur in the floor of the Mouth? How would you distinguish and treat them?

Dental Anatomy and Physiology and Dental Surgery.

5 to 8 p.m.

N.B.—The Candidate is required to answer at least two of the three questions, both on Dental Anatomy and Physiology, and on Dental Surgery and Pathology.

Dental Anatomy and Physiology.

1. Compare the dentition of the Carnivora with that of the Herbivora. What relationship exists between the character of an animal's food and the form of its teeth and temporo-maxillary articulation?

2. What are the so-called Epithelial Pearls? Where are they usually found? Explain their origin.

3. Describe the methods of staining, clearing, and mounting a decalcified section of a Human Tooth with the pulp *in situ*. Give the reasons for the various processes.

Dental Surgery and Pathology.

1. What are the different forms of Bacteria found in the mouth? What part do some of them take in the production of Dental Caries?

2. How may Diseased Teeth or Septic Instruments bring about severe constitutional or even fatal results?
3. The four Upper Incisors being obliquely fractured at the gum-level, the Canines being carious, discuss the various methods of treatment.

ROYAL COLLEGE OF SURGEONS IN IRELAND.

The following were the papers set in the Final Examination for the Licence in Dentistry. November, 1897.

Mr. Stack and Mr. Baker, Examiners.

[All the Questions to be attempted.]

1. State several prominent causes of toothache. Discuss briefly the differential diagnosis and treatment of any three of them.
2. Teeth may be united to each other in various ways. Give a classification and description of such union.
3. What teeth are liable to be absent altogether from the maxillæ, and what teeth are most frequently found concealed in the maxillæ?
4. State briefly what you know about transplantation, replantation, and implantation.
5. State the changes which may occur in the root membrane and cementum of a tooth in consequence of (a) acute inflammation, (b) chronic inflammation.

Mr. Bishop and Mr. Yeates, Examiners.

(All the Questions to be attempted).

1. Describe Balkwill's method of crowning, and state its advantages over other methods.
2. What materials have we at our disposal for taking impressions of the mouth? What will influence you in your selection?
3. Classify alloys, and give examples.
4. How do you adjust swivels and bolts in a complete upper and lower denture?
5. State how you would repair a split in an upper gold denture.

ROYAL COLLEGE OF SURGEONS, IRELAND.

Dental Examination.

The following gentlemen having passed the necessary examination have been admitted Licentiates in Dental Surgery of the College:--Mr. H. M. Chapman, Dublin; Mr. D. Craig, Londonderry; and Mr. K. A. Daman, Birmingham.

AN UNREGISTERED DENTIST.

At the Thames Police-court, before Mr. Dickinson, Alfred Thomas Wilson Maguire, of 55, Bow-road, was summoned by George Read Matland, under the Dentists' Act, 1878, for unlawfully taking and using the name or title of dentist.

Mr. George Hay Young, who prosecuted, said the summons was taken out under the third section of the Dentists' Act, which provided that from August, 1879, a person was not entitled to use the name of dentist unless registered under the Act. Therefore it would be proved that defendant was restricted from using the word "dentist," and by doing so rendered himself liable to a penalty of £20. The defendant carried on business at 65, Bow-road, and on Oct. 25th an exhibition was opened at the People's Palace, where both the complainant and defendant exhibited. The defendant had a show-case on a stall, on which was also a frame containing Press notices. Mr. Matland was struck by finding the word "dentist" in one of the notices. The complainant had a portion of the cutting down to the word "dentist," copied. Afterwards on going to copy the rest of the notice he found the frame had been turned round, and on turning it round again the defendant's brother interfered. An important point was the cutting in question, which was taken from the *East London Observer*, and appeared in an issue of that paper in July, 1896, thus showing that the defendant had possession of it for some time. Probably the cutting was supplied to the newspaper by the defendant himself, and if it was not it would show that people believed he was a dentist. Afterwards the word "dentist" was erased from the cutting. It

might be said that Mr. Matland was a rival, but there could be no rivalry between a qualified and an unqualified man.

The complainant, in answer to Mr. Mitchell, who defended, said that when the defendant exhibited at the exhibition last year he wrote to the People's Palace to try and get his stall removed, but the committee would not consent. Witness was registered under the Act, and a person so registered could advertise. The defendant was not on the register.

In reply to the charge, Mr. Mitchell said there was no proof that the defendant was there or knew that an offence had been committed, but taking the case at its strongest, what did it amount to?—A press-cutting, with the inspiration of which he had nothing to do. The case was entirely different to one where the man was neither qualified nor registered. Last year Mr. Maguire exhibited at the exhibition and was not interfered with.

Mr. Dickenson said the defendant ought to have struck the word "dentist" out of the notice. The case had been very rightly brought before the Court, but as the offence was a technical one there would only be a penalty of 1s. and 23s. costs.

To Correspondents.

1. Communications intended for insertion in the ensuing number must be forwarded to the Editor, at the Offices 289 & 291, Regent Street, London, W., by the 8th and 23rd of the month, and must be duly authenticated by the name and address of the writer.
2. No notice taken of Anonymous Communications: name and address must always be given, although not necessarily for publication.
3. We cannot undertake to return communications unless the necessary postage stamps are forwarded.
4. It is earnestly requested of our correspondents that their communications be written on one side of the sheet only; and we also beg to call particular attention to the importance of a carefully-penned signature and address.
5. All communications relative to subscriptions and advertisements are to be addressed to the Publishers, Messrs. J. P. Segg & Co., 289 & 291, Regent Street, London, W.
6. The Journal will be supplied direct from the office on PREPAYMENT of Subscription as under:

Twelve Months (post free) 14s. 6d.

Post-office Orders to be made payable at the Langham Place Hotel Office, to G. E. Skliros, 289 & 291, Regent Street W. A single number sent on receipt of seven (penny) stamps.

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VOL. XL.

DENTAL CARIES.*

By Mr. WALTON R. READ.

Mr. President and Gentlemen,—The subject on which I am reading a paper to-night is one of great interest to us all, for were teeth not pre-disposed to caries there would be but little need of the dental surgeon. But as the teeth of each generation seem more prone to caries than the preceding one, there need be no fear for the abolition of that necessary, even if to some minds unpleasant person—the dentist.

The predisposing causes of caries will be treated as follows. The general appearance ; the various theories put forward to account for the phenomena and the methods will be briefly touched on by which caries may to some extent be prevented. But the subject of treatment in various cases will not be gone into, as our President gives a series of interesting lectures on this important branch of dental work, and much valuable information is obtained from the demonstrator and members of the staff at the chair side.

Predisposing Causes may be described under two headings, Local and General.

Local causes. Under the heading of defective formation of teeth, we have included those with but a slight amount, or even no enamel at all, or the enamel may be deficient at certain points ; the acids of the mouth naturally find it a comparatively easy matter to destroy this portion of the tooth ; therefore it decays.

* Read before the Students' Society, National Dental Hospital.

Teeth in which the lime salts are somewhat deficient, and the organic matter of undue preponderance, are also liable to caries; for the tissue being less highly calcified offers but little resistance compared with that of a perfectly formed tooth, and so is more easily broken down. In cases where the dentinal tubes are carried through the enamel, the acids find their way direct to the dentine, without having first to break down the normal covering of enamel; and so have a comparatively easy matter to disintegrate the softer substance, dentine.

When caries has destroyed part of the dentine, the enamel on the surface breaks off, and a cavity is the result.

The shape of a tooth is often a predisposing cause, inasmuch as it often provides lodgment for food debris, whilst it undergoes fermentation. The relation of one tooth to another is instrumental in caries in a similar way; also from the fact that when teeth are unduly packed together, so that food lodges which cannot be swept away by the tongue, and so must remain until it is dissolved or ferments away, or is shifted by external mechanical force, as for instance, by the toothpick.

In abnormal conditions of the secretions of the mouth, the fluid produced may be of an acid consistency, and this would, acting on the teeth, start decalcification.

As to general predisposing causes:—

Hereditary influence. It is often found that where the parents have bad teeth, the children suffer in the same way. But on the other hand, the parents may have good teeth, and the children bad.

Certain occupations predispose the employee to caries, as for instance, in alkali works, where the men are always exposed to acid fumes. Here the teeth are said to blacken, and then rot away.

Civilization is undoubtedly responsible in a large measure

for caries, as we now take so much finely prepared food, that our teeth have but little work to do, compared to that which they did when all were savages.

Class of foods. This depends to a great extent on the fermentable properties of the food in question; for meat-eating tribes are found with but slight evidence of caries, whereas with those tribes subsisting on farinaceous foods, the contrary is found to be the case. The general feeding during childhood will be referred to later on.

Rheumatism, gout, and general condition of the body, undoubtedly have influence on caries, but whether this is due only to abnormal secretions, or whether to other causes, is doubtful.

Manifestations of Dental Caries.

1st. Enamel loses its normal polish, and small whitish and somewhat opaque spots appear on the surface.

Then these become darker, especially in the base substance of the enamel roos, which have their outlines more distinct than normal; they also present transverse markings, which are seldom seen distinctly in the normal state. In the interstices between the enamel roos some investigators have discovered delicate beaded fibrillæ.

In the earliest stages of caries when only the enamel is affected, no traces of *Leptothrix* or micrococci or other bacilli are to be found. As the disease advances, the subjacent dentine is affected, the structure of the dentine being less dense than enamel, disorganization goes on more rapidly and the lime salts being dissolved out leaving only the somewhat soft gelatinous residue.

Microscopic investigation at this stage of the affection shows the enamel to be broken down, disorganised, and the dentine adjoining to be of a yellowish colour. In acute cases, this yellow colour is seen dipping far down into the dentine towards the pulp cavity. At the margin of the diseased

tissue the dentinal tubules appear to be less distinct. This is stated to be due to consolidation of the contents of tubules, others state it to be due to the exclusion of air from the tubules. At this period, the zone of translucency appears, but the cause of this is by no means certain. Dentine is to some extent opaque, the opacity being due to the refractive indices between the matrix and the contents of the tubules. Let these indices be equal, and we have translucency. The equalization of these indices may be accomplished by altering the matrix to resemble the contents of the tubes, or altering the constituents of the tubes to resemble the matrix. When a transverse section of the dentine is examined at this stage, the characteristic tobacco-pipe stem appearance is seen. Later on these tubules become somewhat confluent, the base substance disappearing, and the part becomes a mass of disintegrated tissue and bacilli. The effect of mechanical strain on the surrounding enamel that has not been attacked, and is but imperfectly supported with dentine is to break it down; and a more or less large cavity is formed, providing a fine lodgment for food débris, and a basin for the fermentation to take place in.

The breaking down of a large piece of enamel is often the first intimation that the patient receives that decay is present; and he often thinks that the tooth is broken during mastication, and that the decay is the result of the fracture. If no radical treatment is applied, the decay advances and the pulp is exposed. If, however, the decay has been of a slow nature, the pulp chamber is often found to be more or less obliterated, due to the formation of secondary dentine. But in most cases, whether rapid or not, it will be seen that the pulp has made some effort in this direction. The result of exposure of the pulp in most cases is inflammation, and owing to it being enclosed in rigid walls, the pain that is set up is generally of an acute nature; but, in some cases it will be found that pain is only set up when the surface is pressed on by food;

thus it may be inferred no severe inflammation has arisen. Pain is often felt before exposure of the pulp takes place, sometimes even before caries is discernible ; but decay eventually takes place, and at the spot where the discomfort was localized. Exposure of the pulp is usually attended by ulceration of the surface, often emitting a serous fluid ; this is generally spoken of as suppuration of the pulp, but it is very different from what is surgically known as suppuration, and although it may contain a small amount of pus, it contains but little broken down white corpuscles. The reaction of this fluid is alkaline, and thus tends to neutralize the acid bathing the teeth, and so retard the progress of decay. The pulp then slowly sloughs away and dies. When the pulp is dead no more alkaline fluid is given out, and the progress of decalcification once more goes on apace, until the tooth remnant is nearly level with the gum. It then continues more slowly, but still diminishes ; the root being also slowly absorbed from its apex, and is shed from the gum. This is a typical case, but there are many variations.

Direct Causes of Decay.

Dental caries is a chemico-parasitical process, originating from without the structure, and not from within as diseases of bone.

Decalcification of the tissues by acids is the first part of the action. These acids are formed by the fermentation of carbohydrates in the mouth, the principal one being lactic acid, and is formed from the fermentation of starch, which is first changed to grape sugar and then to lactic acid.

Fermentable albumens form but small amounts of acid, and these rapidly disappear. When the putrefaction of albumens take place, no acid is formed. Also raw vegetables are less liable to ferment than cooked.

The second part of the action is due to the disintegration of the soft parts by micro-organisms.

Various theories have been advanced to account for the phenomena of dental caries ; but, as yet, no one has given a theory which thoroughly satisfies the process. The following are some of the most interesting.

The inflammatory theory advances that actual inflammation takes place in the substance of the tooth.

Bridgman gave a unique one, which he called the Electric theory, likening the process to a cell in which the crown was one pole, the root the other, and the saliva the excitant. In abnormal conditions of the latter, an electrolytic action was set up, resulting in the abstraction of the lime salts.

The chemical theory states the whole action to be a chemical one.

The parasitic theory that decay is due simply and solely to micro-organisms.

Prophylactic Treatment.—To start from the earliest stage, namely, intra-uterine life, the mother, at the period at which calcification of the teeth begins, should take food rich in lime salts, and continue to take this food, not only until the child is born, but also until lactation has ceased.

During the period elapsing from the time of weaning until the second molars are fully developed, the child should be fed on foods containing a large amount of easily soluble lime salts, thus insuring a full amount of lime salts in the formed teeth. The best food for a child after weaning is milk (cow's, goat's, or ass's), good beef tea, a little gravy and vegetables, gradually adding underdone meat. On the subject of modern wholemeal bread and coarse oatmeal, although it has been recommended on good authority, this form of food should be forbidden, for although it contains the husks of corn, in which the lime salts are most plentiful, it should be remembered that these salts are for the most part bound up in the cellulose coat, which is practically insoluble, and thus only acts as a mild irritant to the alimentary tract. Sweet biscuits

and other farinaceous foods, between meals and before going to bed, should be prohibited, as by this means the child's appetite for its regular meals is spoilt, and its due nutrition impaired ; also the remnants of food, taken in just prior to sleep, cling around the teeth and gums, undergo acid fermentation, which, acting during the night, starts the process of decalcification. Another important matter is the due cleansing of the teeth, which should be done when possible immediately after meals. This should be most rigorously enforced in young children, as by its fulfilment food particles that have not been removed by the tongue are cleared from the interstices, and acid fermentation prevented. Prior to going to bed a small piece of waxed silk should be passed between the teeth to remove the débris of food that has escaped the brush. Whilst on the subject of cleaning the teeth, the patient should be reminded to cleanse the gums and mouth as well as the teeth ; and where caries appears prevalent an alkaline mouthwash should be prescribed to be used particularly prior to going to bed.

Before concluding, I should like to say a few words on the subject of arrested caries. Caries sometimes comes suddenly to a point at which the action ceases, and the outer tissue becomes very hard and polished. This is known as arrested caries. The reason is somewhat doubtful, but is probably due to an improvement in the general health and surroundings of the subject.

During this short paper I have doubtless omitted many important points, which I trust will be brought out in the discussion.

TUBERCLE BACILLUS AND THE X RAYS.—Bergonié and Ferré report after two series of investigations that the rays had no action on either the virulence or the vitality of cultures of tubercle bacilli.

British Journal of Dental Science.

LONDON, DECEMBER 15, 1897.

THE GENERAL MEDICAL COUNCIL.

The General Medical Council has resumed its sittings, and has performed a considerable amount of work. Several penal cases have been dealt with, and the Dental Education and Examination Committee have issued their recommendations, which will be referred back to them to be brought up again next May in a series of propositions. It is most desirable that the examinations for the Dental diploma in the four centres of the United Kingdom should be brought into line, and no doubt this will be accomplished ere long. The report of the Education Committee has also been received, and there can be no doubt that from January 1st, 1899, the Preliminary Medical Examination will be made much more exacting, being on a par with the Matriculating Examination of a University. The *personnel* of the Council has somewhat changed since its last session, and now includes Mr. VICTOR HORSLEY, whom we congratulate on his recent election. We also congratulate ourselves, for in Mr. HORSLEY we hail an ardent champion of professional reform and uprightness, whether Medical or Dental. We know that Mr. HORSLEY has the best interests of the Dental profession at heart, we know that he is in favour of a Dental representative on the Council, and we feel sure that until the time arrives (as come it will) when we shall elect our own representative, we have a sincere well-wisher in one who is a fearless champion of whatever cause he considers a just one.

If another argument for the admittance of a Dental representative on the Council were needed, it would be found in one matter discussed by it last week. This matter

is alluded to in the report as follows, "On a motion from the Chair, the Council considered *in camera* the action taken by the Executive Committee in regard to the registration of certain dentists." We all know that since the passing of our Act, advantage has been taken of Clause 37—which makes it lawful for the Council to "dispense with certificates, examinations or other conditions as to them may seem fit"—to place upon the Register the names of certain persons (more or less fit) who considered themselves privileged to avail themselves of this loophole. But by a *résolution* passed some considerable time ago, the Council determined that the time had arrived at which no more admittance by the back-stairs could be tolerated, and consequently, several attempts more or less well-organised have failed. But recently a petition was forwarded to the Executive Committee signed by doctors, lawyers, and two registered dentists praying that a certain practitioner should be permitted to have his name placed upon the Dentists' Register. As to the fitness or otherwise of the Candidate we have nothing to do; that is not the point in question. The question is, shall any man who wishes to be placed upon the Register be allowed by petitioning the Council to be so placed? It is now nearly twenty years since the Act was passed. The admittances both before, at, and after that time were notoriously conducted in a very lax manner, and is it reasonable to expect that, after this long lapse of time, any man, by obtaining signatures from his friends as to his capabilities, should be allowed to override the law and be placed on an equality with those who either by the exercise of common prudence or by the expenditure of time and money on their curriculum have earned their right to be registered. Supposing that a chemist presented a petition, saying that he had successfully prescribed for his customers in defiance of the Apothecaries' Act, for the last twenty years, and asked on that account to be placed on the Medical Register; do we suppose for an instant that such a petition would be granted? It is an exactly parallel case.

We see from the report that the Council resolved "to direct

the Registrar not to act on the instructions given by the Executive Committee in the matter of certain registrations in the Dentists' Register until further orders from the Council." This means, we hope, that the recommendation of the Executive Committee will not be carried through by the Council, and that this audacious attempt has been frustrated by those both within and without the Council who have the best interests of our profession at heart. It would be a gross injustice to those dentists already on the Register, and to parents and guardians and students who expend time and money on a dental education, on the understanding that that is the only means of being placed upon the Register. It would be unjust to former unsuccessful applicants, who would feel they had just as good a right to registration, and would be certain to demand it. We have no fear that the Council will stultify themselves by any such unjust and unwise action and feel sure that the attempt will be—as it deserves to be—a failure.

FORMULA FOR IMPRESSION COMPOSITION.—Take of French chalk, 14 parts ; gum kauri, 8 parts ; and stearine, 4 parts. Melt the stearine on a water bath, then add the finely powdered gum kauri in small quantities. When dissolved, sift in slowly the French chalk, and stir constantly till cold. The composition can be coloured with carmine if desired.

CARIES OF THE BONES OF THE HEAD AND FACE.—Mr. Rickman Godlee calls attention in one of his lectures to the fact that a somewhat common affection in tuberculous cases is caries of the lower jaw following caries of a tooth. This does not, as a rule, heal on the removal of the tooth, as generally happens in healthy people, but requires the removal of the carious bone, and even then a complete cure is seldom obtained. This should be a warning to dentists always to purify their instruments. It is possible that they may

infect others with tubercle and so start tuberculous mischief in the glands of the neck. In this connection it is worth while to mention the frequency with which the tuberculous taint has been met with in people affected with actinomycosis ; and the danger of mistaking this affection for simple necrosis of the jaw. He had met with one such case, a young lady, coming from a markedly tuberculous stock, and herself the subject of phthisis. In this case it affected the upper jaw, and was cured by scraping, but the phthisis continued to advance rapidly. Another rare affection he had once met with was perforating necrosis of the skull. A number of fluctuating areas appear on the head, and on evacuating the contained pus a small sequestrum involving the whole thickness of the skull may be picked out of the bottom of the wound. The rapid separation of these tuberculous sequestra is in marked contrast with the tedious process which is the result of syphilis.

THE DENTIST AND HIS TORPEDO-GUARD PATENT.—Mr. G. H. Jones, of Hove and London, has been turning his attention to the invention of a torpedo guard, and it has landed him in the Bankruptcy Court, where he came up for examination recently. The debtor's accounts showed gross debts £10,375, of which £5,652 was unsecured, and assets £275. His dental business, the debtor said, had been a prosperous one, but the income from it had fallen off owing to his having neglected it in his endeavours to get his torpedo guard patent taken up. He attributed his failure to expenses to the amount of £1,775 in connection with and inability to realise the torpedo guard patents, which he had valued at £20,000. Contingent liabilities, put down at £4,500, were not expected to rank until the patents were realised. Some of the most influential men in the Navy had seen and approved of the patent, and he was still in hopes of realising a large sum from it. We have a proverb that the shoemaker should stick to his last. As a rule, a "prosperous dental business" would bring quite enough work and responsibility to satisfy most dentists, without seeking fresh cares.

ACTION FOR DAMAGING FALSE TEETH.—Thomas Goddard, of Hollingworth, sued Bold Bramhall (suggestive Christian name !) a tin-plate worker, at the Glossop County Court for 30s., for damages to false teeth. The parties had had a quarrel about a kettle, and defendant afterwards knocked plaintiff down and smashed his false teeth. He was brought before the magistrates and fined 2s. 6d. and costs for the assault, and Mr. Bostock who defended, submitted that the proceedings in the police court were a bar to the present proceedings. The Judge said he would give his judgment at the next court. It would be very hard on the plaintiff if the half-crown includes the damage to his false teeth. It seems fairly cheap for the knock-down alone. But the ways of the law are very mysterious.

CEREBRAL TUMOURS.—Although we have greatly advanced in brain surgery, Bergmann, at the International Congress at Moscow, speaking of the surgical treatment of cerebral tumours, warned the advocates of surgical interference that such treatment is no light matter, and as only to be undertaken in carefully selected cases. He protested especially against trephining for diagnostic purposes. The localisation of tumours is at present so difficult that it is scarcely possible to localise them unless they are either in or close to the motor area ; as a matter of fact, where the operation is done without previous definite localisation the tumour is seldom found ; in six cases operated upon by Bergmann he found the tumour only in one. The dangers of the operation, moreover, are considerable. Loss of blood may be considerable, and even endanger life. Shock often proves fatal. Out of 45 cases, death occurred either during or shortly after the operation in 14 cases. Epilepsy may result from the thickening of the pia mater after operation. Further, after incision of the membranes a cerebral hernia may occur, and in spite of treatment may increase until it proves fatal. Hemiplegia is produced by operation in a certain number of cases. Such operations, therefore, have special dangers in spite of the most rigid antisepsis. In almost all successful

operations for cerebral tumours, the tumour has been in the motor area, and could be accurately localised by definite and typical symptoms.

DOCTORS AND UNQUALIFIED ASSISTANTS.—The General Medical Council have now, by their notice and resolution, declared that any registered medical practitioner "who is proved to have employed an unqualified assistant is liable to be judged as guilty of infamous conduct in a professional respect and to have his name erased from the Medical Register." Further, in regard to the practice commonly known as "covering," the Council give notice "that any registered medical practitioner who by his presence, countenance, advice, assistance, or cooperation knowingly enables an unqualified or unregistered person (whether described as an assistant or otherwise) to attend or treat any patient, to procure or issue any medical certificate or certificate of death or otherwise to engage in medical practice, as if the said person were duly qualified and registered, is liable to be judged as guilty of infamous conduct in a professional respect, and to have his name erased from the Medical Register."

Review.

The Dental Surgeon's Daily Diary and Appointment Book.
London: John Bale, Sons, and Danielsson, Limited,
Great Titchfield Street, and Claudius Ash and Sons,
Limited, Broad Street, W.

Another edition of this Diary is now before us for 1898. There is nothing new to say about the book. It is admirably arranged, and contains the information most useful in a dental practice. We are personally glad to see the old features maintained, whilst, for those who wish it, it is possible to have a copy interleaved with ruled paper or with blotting paper at an extra cost of one shilling. It is a good looking book and yet handy and convenient.

Reports of Societies.

STUDENTS' SOCIETY, NATIONAL DENTAL HOSPITAL.

The last meeting of this Society was held on Monday, November 8th, 1897, The President, G. Cunningham, Esq. in the chair.

The visitors having been welcomed, a ballot took place for the following candidates for the Society, viz., Misses. Evans and Handley, Messrs. Irby, Prickett, Colbran, New, Venning, Thorne, Lockett, Humby, Littleboy and Armitage, and they were eventually elected by 12 votes to 2.

The President having called for Casual Communications, Mr. Poundall shewed several curious teeth, including a 4-rooted upper molar and two 2-rooted upper canines.

Mr. Must showed a section of a Dental Cyst under the microscope.

The President then called on Mr. Read for his paper on "Dental Caries," which is published on page 1105.

In the discussion that followed, Dr. Cunningham said that at the British Dental Association meeting a gentleman had brought forward the curious suggestion with regard to Caries that in a large family the children who were odd numbers, such as 1st, 3rd, 5th, were most prone to bad teeth.

Mr. T. G. Read said that strangely there was more Caries now than formerly, although all appliances, etc., for the cure of it were better, but it was probably due to the roller flour mills, which removed the germ, leaving behind starchy flour.

Mr. Brown Thomas quoted a case of a plumber in an acid works the anterior surface of whose four upper incisors had been eaten away by his breathing in acid fumes while at work.

Messrs. Wing, Story and Must also joined in the discussion.

Mr. Read having replied; a hearty vote of thanks was proposed to him for his paper, and the meeting terminated.

Dental News.

NATIONAL DENTAL HOSPITAL.

The Annual Students' Dinner was held at the Holborn Restaurant on the 26th ult., when there was a good attendance. Mr. E. W. Roughton presided, and amongst the visitors were Drs. Samuel West, Blacker, Herschell, Professors H. R. Spencer, J. Rose Bradford, F.R.S., and Messrs. Grabham, J. Smith Turner, Morton Smale, W. B. Paterson, Raymond Johnson, W. H. Woodruff, and many others.

There was a good musical programme, and the ventriloquial entertainment of Mr. Fred Russell, and the sleight-of-hand tricks of Dr. Herschell were much appreciated.

After the Loyal Toast,

The CHAIRMAN said: I now rise to propose to you the toast of the evening. I know that many old friends who attend this dinner like short speeches; in fact, there are some of them who think that in recent years the speeches have been too long. One gentleman wrote to the Dean a short time ago, saying that in his opinion our Annual Dinners were simply occasions for the politicians of the profession to let off political steam, and for "gas-bags" to let off "gas." Now, gentlemen, I am not one of the "gas-bags." I have no fads and I know nothing whatever about politics, so that I will only occupy just sufficient of your time to do justice to the toast of the Hospital and College, the working of which really sums up the object of our meeting here to-night. Most of you, all of you I should think, will remember our original modest home at 149, Great Portland Street. I remember that place very well indeed. I remember my first visit there. I went into a little room at the back where extractions were done, and on the floor I saw a box labelled "jaw-dust." Well, that made me think that dentistry was a very violent form of exercise, but I found out afterwards that the label really meant "saw-dust," the top of the S having been worn out. They are, however, days of the past, and now we have a beautiful building which is completely up to date. There is not a better Dental Hospital building anywhere either in this country or out of it. A short time ago a Swedish agent who had been sent by his Government to inspect the Dental Hospitals of Europe, came and looked over the National Dental. He had been to many of the large cities on the Continent, but on leaving the National Dental Hospital he said, "Well, for its size, this is certainly the best that I have seen so far." For my own part I think if he wants to see anything better he will have to wait until the Dental Hospital have built their new hospital in Leicester Square,

The work which has been done in our Hospital is certainly in keeping with the excellence of the building. You know all of you the nature of the work that has been done, and there is no occasion for me to dwell upon the benefits which patients receive, but I would like to say that a very great and strenuous effort is made to prevent charity being used, or rather abused by patients who can afford to pay for their treatment. At a professional gathering like this we must not forget that a large part of the Hospital work is done by laymen and students, and sometimes medical men are apt to look upon Hospital Boards as being composed entirely of old fogeys whose business it is to interfere with things they do not understand. Now that is not so at all. Were it not for business men who understand finance, men like our friend Mr. Grabham for instance, were it not for men like that, giving up a large amount of their

time and energies to Hospital management, the London Hospitals would not be in such a condition as they are. Of course the bulk of the real work of our Hospital is done by our Dental Staff assisted by the Students. Our Dental Staff is composed of men who are amongst the first rank of their profession, men who are busy practitioners, and yet who find they are able to give a considerable amount of time in regularly attending the Hospital, so regular and punctual is that attendance that recently it has been deemed well to have a special book recording that punctuality (laughter) so that it may go down to succeeding generations as an example (hear, hear).

Then we have a large Staff of Students. I suppose they are "gas-bags" at present; but they do a vast amount of work at the Hospital, work which is of great intrinsic value and which also is a certain source of revenue to the funds. Then there are the House Surgeons:—House Surgeons, especially in a Dental Hospital, are men who love work, and they are never so happy as during the holiday season when the patients' waiting room is full, when there is no student about, or rather the Dental Student happens to be ill.

Now the most important part of my toast is the College. The College consists of students, and of those whose privilege it is to teach. Unfortunately my personal knowledge of the Students is not very great, but I can say with confidence from what I do know of these Students, that they are thoroughly hard working men, men who do their utmost to acquire a sound knowledge of their profession, and that they succeed in doing so I think is shown by the way in which they distinguish themselves at the "Hall-by-the-Sea" (laughter). I mean the Examination Hall by the river. During this year we have sent up, I think, 14 men, 13 of whom passed (cheers). I was going to say that we had sent up 13 men and that 14 had passed (laughter). Not only are our students good workers, but they are thoroughly good fellows, and I think that is shown by the way in which the old students come here year by year to greet their old friends and stimulate those who come after them to keep up the good work of the Hospital to which they have largely contributed in the past.

Of the Lecturers I think I may say without contradiction that each and every one of them does his best to teach his particular subject thoroughly well.

Now I have alluded to the various component parts of the National Dental College; but what use would these parts be without a co-ordinating centre? that co-ordinating centre is our Dean. Everybody knows Mr. Spokes; everybody knows what a distinguished position he keeps in his profession. We all know his extreme energy, his tact, and his consideration for everybody with whom he is brought in contact, from his senior colleagues down to the youngest students who have just entered the place. I think you will agree with me that he is the right man in the right place, and that he is a man to co-ordinate our efforts, to bring further success to the National Dental Hospital and College, (hear, hear).

Gentlemen, now to the toast of the Hospital and College including the Dean. (Cheers).

The DEAN: Mr. Chairman and Gentlemen, I am glad to think that a few simple words will suffice to return thanks for the toast which you have just drunk at the invitation of our Chairman. I am glad to think that no after dinner oratory is required on this occasion. Our Chairman has told you of the place, and of the old students who have perhaps forgotten their experiences at the Hospital with the pure nitrous oxide, but not the debased form of anæsthetic which comes out at this dinner,

and which represents the "gas-bag." Well, gentlemen, I do not wish to drive away old students or to give them any just cause or complaint, and in a few words I will do my best to draw attention to one or two points. Now as regards the Hospital as a Charitable Institution, I think it is safe to say that it does a very excellent work to the suffering poor in the North and West of London. Our patients, I think, generally come from those parts.

With regard to the management of this Charitable Institution, you have heard the Chairman allude to the excellent work done by the Lay Committee. These gentlemen who might easily spend their time in other directions give up a certain amount of that time to interest themselves in the proper working of the Hospital, and I may say on the part of my colleagues of the Teaching Staff, that we fully recognise the endeavours made by the Lay Committee whenever it is necessary to make a new departure. And I think very shortly a new departure will be required to comply with the requirements of the curriculum of the Royal College of Surgeons. Hitherto, as you know, the work which has been done at the Hospital has been either in the radical treatment by extraction, or the conservative treatment by stopping. No attempt has been made to supply artificial teeth to the poor; but in connection with the new Curriculum, which will soon come into force, it will be necessary for the Lay Committee to inaugurate and carry out a new scheme whereby a certain amount of cases shall be treated from the artificial teeth point of view, and, I think, that Lay Committee will in future, as in the past, do its very best to meet the new requirements. I do not propose on this occasion to say anything about the abuse of the Charity. That you most probably know is a thing that gives a great deal of trouble; but I wish you to understand that every effort is made to prevent any such abuse taking place.

With regard to the school I can only say that my colleagues, will in the future, as in the past, give their very best attention to the instruction of the students; at the same time not overlooking the duties that are required for proper attention to the patients. The two things as a School and Hospital are absolutely dependent one upon the other, and, therefore, it is imperative that the Lay Committee, the Committee of Management and the School should work together in the most complete harmony, and I venture to assure you that our Institution either as a Charity or School will not suffer in that respect.

Sir James Sawyer recently told an audience in Birmingham that one of the necessary conditions to procure a long life was not to be over-ambitious, and this remark may, I suppose, be applied a corporate body as well as to individuals. Now some people think that a Charitable Institution should be quite in the front rank of any similar institutions. I myself think that is possible to go a little too far in that direction; limit your ambition, and you may live to a ripe old age, I think those critics who sometimes attack us should bear that in mind.

Our School is a small one, and I do not think we should propose to make it a very large one, and the most, I think, we should try to do is to make it one of the best schools, and, I think you will agree with me, that we can, at all events, at the present time, rightly claim it to be one of the best schools. I thank you, sir, for the way in which you have introduced this toast, and apologise to the cantankerous old students who may make complaint of the length of my remarks. (Cheers).

Dr. MAUGHAN: Mr. Chairman and gentlemen, I suppose if I asked all the old students that are present here to-night what is the secret that underlies their success in life, they would probably answer me in three terms: one, I do my work neatly, cleanly, with clean hands, clean

instruments; secondly, gentleness would come in as a very important factor in the success in private practice, for who is there that delights to go to a Dental surgeon to have his teeth attended to, or who among the opposite sex is happy in placing herself in a dentist's chair in the ordinary way, and I venture to say that if a dentist happens to be ungentle, he will get a very much smaller clientele than he otherwise would. The best point I think most of my old friends insist on would be this: "I do my work so that it could not possibly be done better," and I think this is a very fit occasion for mentioning just those three points¹ so that the present students and those who have so capably passed the barrier a few days ago may take such lessons to heart and utilize them for their own benefit hereafter. I also hope that the present student may imitate that noble band, who, although subjected perhaps to a wrap on the knuckles which was at the moment particularly painful, have got over it, and passed their examinations, I believe, with *eclat*.

I would ask the present student to be punctual in whatever engagement he has promised to fulfil; let him fulfil that engagement to the moment. I would also ask him to carry about a note-book with him, for very often a member of the staff happens to drop a little remark which is of great service to him. Another point which perhaps is not insisted on as perhaps it might be, is the necessity for care in the conversation that is conducted in the presence of a patient (hear, hear). Far too often does the patient's heart beat a great deal quicker than it should do, and he is led into miseries of a thousand speculations which unthinking students happen to put in the shape of questions to their senior officer. I would ask them then, if they must put the questions, to put them in such professional language as can only be understood by ourselves, and not by our patients. And one word more, before I sit down,—I cannot help saying that whatever must have been the feelings long years ago when the Spartan mother sent her sons forth to war, and gave them that memorable message which is fresh in the minds of you all, especially of that year (I believe it was 480 years before the Christian era), when that small band under Leonidas occupied the pass of Thermopylie and there defeated Xerxes with his thousands,—whatever must have been the feelings of those mothers at home when their sons came back triumphant, our feelings by a phylogenetic course of training must be proportionately greater, and we must feel a very great pleasure in seeing our men go forth to the College and come back crowned with honours, crowned with distinction, a distinction that they not only very deservedly wear themselves, but reflect so nobly on their Hospital. I would ask as I propose this toast, and I give it to you with all heartiness, to drink not only to the health of the past and present students, but to those who are absent and who have left us for the larger sphere of life. Past and present students, gentlemen, I drink your health. (Cheers).

Mr. L. H. CANTON: Mr. Chairman and gentlemen, all students of the National Dental Hospital must feel most grateful for the kind words expressed by Dr. Maughan at this annual gathering. It gives us, as past students, the greatest pleasure to meet here and see our old friends and chums, and it also pleases us to meet with fresh acquaintances who are now maintaining the honour of the Hospital. When we hear of such good results as those mentioned we feel that the reputation of the Hospital is not only being maintained, but we also feel that we can challenge any institution in the spirit of friendly rivalry to compare with us (cheers) and say what institution will dare to pull down our flag from the main top? There are several gentlemen here to-night who have interesting reminiscences of the old Hospital, who can remember

all that part relating to the old Dental Surgery, and it is with the greatest satisfaction that we look upon the present time as compared with the past. We, as students, remember our experiences at the Lectures, and at the Hall by the Sea, and we look upon those times with a feeling of pleasure, especially when gathered together on an occasion of this sort. At the present day, the least the past students of the National Dental Hospital can do is to hope that the present students may have as pleasant a time as we had, and that the present National Dental Hospital may enjoy all the merit it deserves. (Cheers).

Mr. W. H. MUST : Mr. Chairman and gentlemen, I rise to respond to the toast of the present students, and to express our appreciation at the at the new departure of having a member of our staff in the Chair. During the past year students have been to Dances, Smoking Concerts, Musical Evenings, &c., all of which have been most enjoyable; but one thing I would mention on this occasion is, would it not be possible for the members of the Staff to see their way clear to join us.

At the Middlesex Hospital we have held our own during the past year, taking most of the first prizes in something or other, rowing for instance, and all kinds of sports have been indulged in.

The speaker went on to explain that in his opinion the examiners expected the student to be more conversant with surgery than was really fair, and stated that not only had complaint in this connection been made by students of the National Dental Hospital, but that students of other Hospitals had complained of the kind of questions put at examinations. He said, however, that he was far from depreciating the use of surgery, but that in view of students spending the first session of their college training on other subjects, and having such little time wherein to study the science of surgery he did not consider the great results expected of them were warranted. He thanked the former speakers for their kind expressions and the gentlemen present for their attention.

Mr. SPOKES : Mr. Chairman and gentlemen, my Colleagues who drew up this list have asked me to propose the next toast which I do with a great deal of pleasure because the National Dental Hospital always likes to see its friends, and generally we on these occasions are able to see a great many of our friends supporting our Chairman as they do to-night. We have very many distinguished guests present on this occasion, but unfortunately our dinner is held at a time of year which clashes with an examination of the College of Surgeons, thereby preventing some gentlemen, who would like to have the opportunity of gazing upon the examiners of the Dental Board, from doing so. They are employed to-night in another place, examining for the fellowship at the College. Then we generally have other dental friends with us, and we have some to-night who are connected with the School in Leicester Square, several of whom for many years have been very closely, and who are still closely connected with that well-known School, and I think it is an occasion upon which we may express to them our earnest hope that they may soon become possessed of a building, no doubt far larger than ours, to accommodate a school not only known in our country, but throughout the whole of the civilised world (cheers). Now, gentlemen, the toast was to be responded to by an old friend of ours, but unfortunately Mr. David Hepburn is prevented by illness from attending to-night. I may say in passing that Mr. Hepburn was the private guest of one of our staff, and it had been suggested that we should relieve the guests of the Hospital who sit at this table from the onerous duty of saying anything after dinner; but in meeting the emergency we have fortunately lighted upon another Scotsman whose name is always well

received, and a gentleman who has spoken before in this hall. Gentlemen, I give you with all heartiness the toast of the "Visitors," and include with that toast the name of Mr. James Smith Turner.

Mr. J. SMITH TURNER, who was received with cheers, said: Mr. President and gentlemen, I will gladly address a few remarks to you, but it so appears that I am not allowed to occupy your attention long, for I am afraid that I frequently offended the gentleman who wrote to our respected Dean and said that these dinners were made occasions for the wind-bag and the politicians of the profession making a lot of speeches and letting off gas. Well, I think if any politics have been indulged in to-night that they have not come from the old hands of the profession, but that the younger members of the profession have shown a lively interest at least in the politics of dental education, and that they have handled the subject with a certain amount of freedom and skill which does credit to the students of the present day. It is a happy thing to think that we have such opportunities of ventilating opinions, and I take it as a hopeful sign that not only do the gentlemen have such opportunities but that they are ready to ventilate opinions.

I do not know how long the letter was referring to the long speeches, but I have no doubt it was a very long one, and I should think that there are a considerable number of repetitions in it. No doubt the "jaw-dust" box that was seen at the Dental Hospital should be transferred to the saloon, and the "jaw-dust" poured into it by the speakers. I do not, however, think that you have anything to fear in that way to-night for my function is of a very different character. It is very easy to speak for the visitors, and I am sure there is not a visitor here who is not charmed with the reception which they have received to-night, and I would also say that there is not a visitor here who has not been delighted to hear of the success that has attended the Hospital at the recent examination (Hear, hear).

We have shared the great satisfaction expressed by Dr. Maughan. We have shared the triumph of the glorious three hundred that defended the Pass of Thermopylæ; we have come out safe and sound with the satisfaction of knowing that 13 out of 14 who went up for the Examination came out victorious, and we hope that the one gentleman left will come off successfully another time.

In the name of the visitors I have to assure you of our extreme satisfaction, and of the pleasure we have in partaking of your hospitality, and of witnessing the great success which attends the National Dental Hospital. I have a kindly feeling, speaking for myself (and I think I may speak for several of the visitors) a kindly feeling towards that Dental Hospital.

Allusion has been made to the Lay Staff of the National Dental Hospital and of all Hospitals. I think perhaps a lay member might have responded more effectively than I have, but I am sure no Lay Member can recognise more fully than we who take a personal share in the interests of the Hospital, the way in which their valuable services are valued by the dentists who watch the Hospital (cheers).

Mr. W. RUSHTON proposed the toast of "The Chairman" in eulogistic terms, referring to Mr. Roughton's distinguished career at the London University and elsewhere. He said "In addition to this brilliant student's career, Mr. Roughton has filled several posts upon some of the best Hospitals. But I think, gentlemen, as far as we are concerned the most interesting point in Mr. Roughton's career was reached when he became Honorary Visiting Surgeon to this Hospital. It is my opinion that we are under a threefold debt of gratitude to Mr. Roughton; in the first place as Honorary Visiting Surgeon to our Hospital. his kindly help

and his able surgical skill always being at the disposal of the patients of the Hospital; secondly, for his great attention to the students at the "Hall by the Sea," and I think no better criterion can be given of his ability and of the success of his teaching than the result which we have recently attained at the Examination just held. Thirdly, you yourselves have seen what an excellent Chairman he has made this evening.

The CHAIRMAN: I am very grateful to Mr. Rushton for the too flattering terms in which he proposed his toast, and to the gentlemen here for the enthusiastic way in which they have received me. On the present occasion Mr. Rushton said a new arrangement had been made with regard to the dinner, under which arrangement I have been afforded the honour of taking the chair; but he did not add the fact which I will now do, that when the Medical Committee decided to make this change, they decided that the man who did the least work at the Hospital should take the Chair on the first occasion. The work I do there is little indeed, the most important part, but certainly the most difficult part of it being teaching surgery to the students. It is a pleasant duty, and it is a marvel to me how they are so eager to learn that which they have never been expected to know; but I imagine the examination has something to do with it. It is difficult to teach surgery to students, because, first, it is difficult to judge as to what to teach that is really useful to them, and what to leave out; however, I form my own opinion, but it is very hard to know what the examiners of the College expect the student to know.

Last night I was at a public dinner, and one of the examiners in Surgery very kindly came up to me and said how sorry he was he could not be at the dinner here to-night owing to the Fellowship examination, so I thought I would take the opportunity of letting off a little gas, I told him that many of our students complained of the nature of the questions they were asked, and, he said, tell me the worst of them, so I told him the worst question that had been told me by one of the candidates. I cannot, however, repeat that question now, although it refers to the alimentary canal. I said to him that it is really quite time that the College Authorities should set forth some schedule telling the students what they are expected to know, and I must say that I think it is time that such arrangement is made. If a student is meant to learn the whole of Surgery, let him take the whole of it, but let there be an understanding.

I thank you most cordially, gentlemen, for the way in which you have received this toast, and before I sit down, I should like to add, that I think we have thoroughly enjoyed ourselves, and that there will be more music. (Loud cheers).

THE DENTAL HOSPITAL OF LONDON.

The Annual Dinner of the Staff and Past and Present Students was held on the 4th inst., at the Hotel Metropole, with Mr. Arthur Underwood in the chair. There was a large attendance, both of Students and guests and the meeting was a great success.

The CHAIRMAN, in proposing the Toast of the Past and Present Students, alluded to the saying that troubles of the digestive tract led to all the great crimes that have been recorded. The health of the Students meant the health of the whole community. In order to maintain that health some other pursuit should be indulged in than that con-

stituting the daily work, and just as they should avoid the "man of one book," so they should cultivate a hobby—but not necessarily one that had its value in a monetary sense.

Mr. FRANK PORTER responded for the Past Students and Dr. T. H. MILLER for the Present, and both gentlemen admirably acquitted themselves to the evident appreciation of their audience.

Mr. WATSON CHEYNE, in proposing the Hospital and School compared the operation of extraction as performed by a general Surgeon and a dentist, and narrated his own personal experiences when up the Nile. He also spoke of the great advances made in Dental Surgery, more especially in the special department of the Bacteriology of the teeth, and alluded to the work done in this department by the Chairman.

Mr. F. A. BEVAN, one of the Trustees, in responding, said that the many difficulties in the way of a new Building had been overcome, and he hoped to see a start made on the work in a short time. Personally, he meant to stick to the Institution and see the thing accomplished.

Mr. LEONARD MATHESON in responding for the School spoke of the interdependence between the School and the Hospital. The School must not be put second; the Students do the work. He also alluded to the importance of legislation, especially in the interests of provincial practitioners. After all the great weapon was education.

Mr. STORER BENNETT gracefully proposed, and Mr. SMITH WOODWARD as gracefully responded for, "The Visitors."

Mr. CHARLES S. TOMES, in proposing the health of the Chairman, made a good point in referring to the fact that he himself had followed his old pupil in the Lectureship on Dental Anatomy for a second term of work, and expressed the hope that Mr. Underwood might perhaps later on find time to relieve him.

Mr. UNDERWOOD briefly responded.

A selection of music under the direction of Mr. H. Schartau added much to the enjoyment of the evening, and the humorous sketches by Mr. Charles King and Mr. Walter Churcher were thoroughly appreciated. The whole function was a great success.

GENERAL MEDICAL COUNCIL.

The General Medical Council considered the Report of the Dental Education and Examination Committee, on November 30th last. Sir William Turner (in the absence of Sir Richard Quain through indisposition) being in the Chair.

Dr. McALISTER moved that the Council go into Committee for the consideration of the recommendations of the Dental Education and Examination Committee.

Dr. LEECH seconded the motion, which was agreed to.

Mr. BRYANT said that he found the Council had never considered the additional Report which had been presented to it in May last, because it was referred to all the examining bodies for their criticisms upon it. He now brought forward the additional report with the answers of the examining bodies, and also the third and final report.

He had hoped to be able to ask the Council to adopt the final report, but in view of Dr. Heron Watson's and Dr. McVail's notice of motion upon the programme, he felt he would be obliged to go into details connected with all those reports. He thought it would be better to accept the additional report and final report as read, so that he might confine his speech simply to the point of criticism in the notice of motion.

The CHAIRMAN pointed out that in the Report Mr. Bryant had not formulated a series of specific recommendations.

Mr. BRYANT said he did not propose to make any. The additional report was presented in May last, but was not considered by the Council, and the first report was presented in December, 1896. Now he brought up the final report, after receiving the criticisms of the licensing bodies.

Continuing, Mr. BRYANT said the Council had never made any recommendations whatever before with respect to examinations. In Part 2 the Report stated "With respect to the division and order of examinations for the Dental Diploma it does not appear that the General Medical Council has made any recommendations beyond the suggestion that the examination should as far as possible be of a practical character, and should include actual operations, and the preparation of specimens of mechanical Dentistry." With the single recommendation before it, the Committee had been influenced in drawing up the present curriculum, and also the recommendations for the examination. He moved "That the recommendations of the Dental Education and Examination Committee with regard to professional education be approved."

Mr. CARTER seconded the motion.

Dr. McVAIL thought that would be the proper time for the following resolution standing in Dr. Heron Watson's name to come up: "That this Council is of opinion that the suggestion of the Dental Education and Dental Council to the Royal College of Surgeons of Edinburgh and the Faculty of Physicians and Surgeons of Glasgow should unite in conferring a single qualification in Dental Surgery is not provided for in the Dental Act, (Section 28 of that Act never having come into operation), and need not therefore be entertained by this Council, whose duties consist simply in administering the Act."

Mr. BRYANT said there was no necessity for a motion of that kind, as he did not ask for the adoption of the Report. The Committee made a recommendation, and the bodies stated they could not do it, and that was a sufficient answer. But the Council still thought it desirable and were sorry to find it impracticable.

The CHAIRMAN asked Dr. Watson if after the explanation from Mr. Bryant, he desired to persist in his motion.

Dr. HERON WATSON said he should, because it opened up a constitutional question with reference to what were really the duties of the Committee. He regarded a great many of the Committee's recommendations as no part of its duties. The object for which it was originally founded by the Council, was to carry on the inspection of the examinations and to keep the Council informed of the facts that might be brought before their notice. There was no recommendation on the part of the Council that it should be part of the Committee's duty to instruct the Council as to what it should do. The only Committee who, according to the Dental Act, had any right to do so was the Executive Committee, to whom the function of removing from, and replacing upon the Register had certainly been given. The Report was not in proper form. He could not see that there would be any difficulty in the Committee formulating certain definite motions. It was a misfortune that there

should be mixed up together statements of facts and recommendations partly founded on those facts and partly upon other things which were not facts. They were told that the Irish Bodies sent in a recommendation taking no notice of the matter at all. A member of the Council suggested to him that it reminded him of the story of a Discussion on fox-hunting, when it was said that the men liked it, the dogs liked it, the horses liked it, but that the fox made no observation. They had had no proper explanation of the matters contained in the Report. He would like a ruling from the Chair to lay down the course of the Committee in the future, so that its recommendations might be brought up in a proper shape.

Dr. McALISTER called attention to the following resolution of the Council: "That it be remitted to the Dental Education and Examination Committee to consider if it is desirable in any way to modify the existing regulations of the Council as to the course of study and the examinations to be gone through by Licentiates in Dental Surgery." That resolution was passed in May, 1896.

Dr. HERON WATSON said that the remit should also have stated that a series of definite resolutions should be brought before them in a concrete form, and not diffused through several pages of print.

The CHAIRMAN said that the function of the Committee as defined on June 5th, 1895, in a motion by Sir Dyce Duckworth, was as follows: "The Dental Education and Examination Committee shall consider and report all matters connected with professional dental examinations, and with the inspection and visitation of these examinations."

Dr. GLOVER asked if there were nothing about curriculum?

The CHAIRMAN said there was nothing.

Mr. BRYANT said that Report No. 1 was the answer to the first resolution that was passed by the Council. The remit which Dr. McAlister had read was the authority for Report No. 2.

Dr. McVAIL, quoted the following passage, "with respect to the other recommendations of the General Medical Council the Committee have no suggestions to make in the way of alteration." He said the Committee would therefore seem to approve of the most extraordinary idea that a man in a winter and a summer session could get clinical instruction in medicine and surgery—all in nine months.

Mr. CARTER: Why not?

Mr. TEALE: We are not going to make him a doctor.

Mr. BRIANT: He does not require so much knowledge as an ordinary medical student.

Dr. McVAIL said it would be a complete sham. If that were all the student was to get, it had better be left out altogether.

The CHAIRMAN said the Council was not asked to approve of the Report, that was merely the opinion of the Committee.

Mr. BRYANT said the *materna medica* was eliminated from the general course of medical study at his own college (Royal College of Surgeons of England), and a medical student was not required to attend a three months' course. Surely they did not wish to ask of dental students more than they gave to the general students. With regard to Edinburgh where they so sharply criticised the Committee for cutting out the *materna medica*, the only notice he could find was in medicine, surgery and therapeutics. In the report would be found this passage—"A knowledge of neurotics, emetics, purgatives, depressants and stimulants, with

examples, of the septic substances used for disease and the mode of prescription." That was all with regard to the *materia medica*. In London they did not think it right to make dentists think they were justified in prescribing medicines. They were taught to write prescriptions for local applications, but the College of Surgeons did not wish them to write prescriptions beyond simple prescriptions of lotions, and they were not entitled to do so. The Physicians and Surgeons of Glasgow simply required a knowledge of therapeutics in relation to emetics and vomiting including the modes of prescription and the medicines employed. That did not seem to be a very wide scope, The Royal College of Surgeons, Ireland, seemed to eliminate it altogether; he could not find a single note connected with the therapeutic treatment of diseases, such as might fall under the eye or the hand of the dentist.

Dr. McVAIL called attention to the actual subjects laid down on page 262 by the Royal College of Surgeons, Edinburgh, and on page 272 by the Faculty of Physicians and Surgeons of Glasgow. The curriculum of Dublin College began on page 277, and all those subjects were really included in it—*materia medica* and therapeutics were included. He did not understand those little extracts which Mr. Bryant was reading—he did not know where he got them from.

Mr. Bryant said he got them from the appendices—Royal College of Surgeons, Edinburgh, Regulations for the Examinations, page 261, and the paragraph with regard to the knowledge of neurotics, etc., was on page 267. At any rate the Committee had thought very seriously about the question of the *materia medica*, and found that of all of the four bodies the College of Surgeons, England, who had had more experience in dental education than any college in existence, had come to the conclusion that to ask a dental student to go through a course of *materia medica* was going too far. As they had no wish to make him think himself justified in prescribing for local diseases or internal affections, they had no wish to encourage him in the knowledge of that branch of the profession. They found that in the clinical work and instruction obtained from lectures, surgery instruction, and so on, he would get quite enough information to practise his profession. His colleagues on the Committee quite recognised the force of that argument. Also it was left open in their suggestions that *materia medica* might be given by the colleges if they thought fit, although the Committee did not recommend it. It must be remembered they had no absolute power of compelling the bodies to do anything, they could only express pleasure or regret. It would, therefore, be very foolish to attempt to draw a definite line with regard to examinations or curriculum, when it was certain that some of the bodies would not fall in with it. Therefore it was stated in the report that so long as the examining bodies did not fall behind the recommendations of the Council, the Council ought to be fairly satisfied. He had not been able to find medicine, certainly in his own college they had never examined in it. The questions which came under medicine had been treated of fully by surgery—inflammation, suppuration, and so on, and all came in in the lectures and special teaching in surgery and clinical work. The President of the College of Surgeons, Ireland, had previously called him to account for sanctioning the college asking advanced questions and very rightly so, they were more fitter for the general student than for dentists. With regard to the request of the Glasgow Faculty for some kind of guidance as to the extent to which a dental student should be required to go into anatomy, physiology, medicine and surgery, and *materia Medica*, at first sight he had been so satisfied that the request was a wise one, that he had sat down at once to form a kind of syllabus, but after he had done so he had asked himself if it were the function of the Council to do so, and had come to the conclusion in

which he was supported by the Council, that it was not. The Council was not an educational body in that sense. The last paragraph in the final report stated, "the Council feels it does not fall within the province of the Council to furnish anything like a complete syllabus of any part of the examination, but would suggest that it should include a general outline of Anatomy and Physiology, and of the principles of Medicine and Surgery, with only such details in any of these subjects as may have a practical bearing upon the actual requirements of dentistry." To ask that a dental student should learn clinical medicine and how to diagnose surgical diseases, and so on, was going beyond what was at all reasonable. All he required was to know thoroughly all the surgical or medical affections of the mouth.

The CHAIRMAN was bound to say that he should find a very great difficulty in putting motions to the Council which would bring the various questions raised in the Report and Appendix to a definite issue. He thought the Council should have formulated a series of specific recommendations, upon which the opinion of the council could be elicited by a vote.

Dr. MacALISTER moved as an amendment "that it be remitted to the Dental Education and Examination Committee to draw up their recommendations in a series of propositions, each dealing with a single subject, in order that the Council may be enabled next May to come to a definite decision on this subject." He said he had listened with great interest to what Mr. Bryant had said, and thought they had the materials for coming to a decision, but not the materials for taking a vote. There was no clear statement as to what was to be the final outcome of the action of the Council. It would require an Editor and a Sub-Editor to abstract what was the final decision of the Council. He called attention to the fact that some of the recommendations were contradictory to each other, and thought the council should not send out things which required so much elimination.

Mr. GEORGE BROWN in seconding the amendment, said it had been stated that reports which were expected from the Irish College had not arrived, and altogether he thought it would be much better to postpone the whole decision until May.

Dr. McVAIL said it should be added that when the Committee had so drawn up the suggested regulations they should send to each of the four examining bodies a copy, at least two months before the Council in May, in order that they might have an opportunity of making any observations they pleased.

The CHAIRMAN asked Mr. Bryant if he had any objection to withdrawing his motion in favour of the amendment.

Mr. BRYANT saw that it would have been much easier for the Council if the Committee had brought up a series of resolutions, but that was not the whole tenor or meaning of the Report. There were only four Examining Bodies, and that was the first occasion upon which they had reviewed the old additional curriculum, and they had not reviewed nor discussed the question of examinations at all. They were willing to allow a licence to the examining bodies provided they carried out the principle. If the Committee had suggested the elimination of the *matéria medica*, there would, he thought, have been great opposition to it, and it would probably not have been carried. Then they were at once putting out of court altogether one of the most important examining bodies in dentistry in the country, and they were simply saying, "You are not obeying our requirements or our recommendations," and that would raise up a hostile feeling against them in a minute. What nonsense it was to examine a dental student upon the practice of medicine when

the little practice he had would confine it into a remarkably small area ! He was not entitled to be examined in medicine. The Committee was simply giving alternatives, leaving things as they were, and merely modifying the scheme originally laid down, according to what had been found acceptable to the four examining bodies, not wishing at all to interfere with any of them, because upon the whole they carried out the requirements of the Council. The Committee had not asked the Council to alter any single one of the requirements in any important way, except in *materia medica*: Under the circumstances he would adhere to his motion.

Sir RICHARD THORNE said if there was one thing which had astounded him since he had been a member of the Council it was the encouragement given by the Council to mongrel doctors. He felt so very strongly upon the matter that he would have been prepared to have taken a vote upon the following amendment, which he had intended to propose, with the support of Mr. Teale and several other members—"That it be remitted to the Dental Education and Examination Committee, to consider and report whether it is not possible and expedient so to restrict the curriculum for dental students as to make it less adapted to the practice of medicine and surgery, and better adapted to the practice of Dentistry." When he looked at some of the examination papers, he confessed he did not know where they were going ; on the one hand they were doing their best to stop a series of irregular practices, whilst on the other they were supporting the education of those men in medicine and surgery. Mr. Bryant had brought forward the Report, and the Committee had absolutely no comment as to the instruction which was to be given for a whole year in clinical medicine and surgery, in hospitals where students were being educated. By the questions in the examination papers they were practically encouraging them to operate. The examinations were to be of a practical character for the performance of dentistry, and yet the student had to go through a course of medicine. Nine-tenths of the work was not only not adapted to his profession, but it made him waste the time which he ought to give to his dentistry. He had never read anything which was likely to give rise to a greater sham, and to encourage men to do the very thing the Council had always said they had no business to do. What had a dentist to do with general Anatomy ? Why could not he stick to the Anatomy which belonged to his profession ? He had a great deal of sympathy with the four examining bodies. If they really could carry all that out they would very soon limit the number of dentists, and it would be a great pecuniary gain to them. But the public had to be considered, and the question was whether they were to educate those half-doctors and turn them out in medicine and surgery, and then not allow any man to go into the dental profession unless he were able to answer questions about the foetal circulation and the umbilical cord, and where they were to operate down in the trachea, or something of that sort.

Dr. HERON WATSON said that dentistry was part of the medical practice, and so long as the Government saw fit to put it under the regulations of the General Medical Council it was quite plain the knowledge of a dentist must not be limited to that which he absolutely required in his profession. Their object in education was to give a man a standard upon which he might look as a standard of practice, not as a quack would do, but as a man of liberal education.

Dr. MACALISTER thought his amendment was not hostile to Sir Richard Thorne.

Sir RICHARD THORNE : No, I will vote for it.

The amendment was then put to the Council and carried, and on being put as a substantive motion was also agreed to.

The CHAIRMAN asked Dr. Watson if he wished to move his resolution,

seeing that practically the Committee had withdrawn their suggestions.

Dr. WATSON said that if they were to have it brought up again he thought it would be better to settle the matter now.

The CHAIRMAN asked Mr. Bryant whether he thought the suggestion made in the Report as to the fusion of the two bodies, the Royal College of Surgeons, Edinburgh, and the Faculty of Physicians and Surgeons of Glasgow, for the purpose of constituting a single examination, should be passed.

Mr. BRYANT: Certainly not. He had not the least idea of pressing it. He thought it had better remain as a record, that was all.

The CHAIRMAN asked Dr. Watson to observe that the paragraph in the Report said—"Under these circumstances this Committee can only express its regret that its suggestion for the providing a Dental Examination Board for each division of the United Kingdom cannot at present be carried out."

Dr. WATSON said the Committee did not admit they were entirely wrong in the matter. It would be well if they removed that from the Report.

Dr. GLOVER asked if there were anything in the Dental Acts to prevent the two Bodies voluntarily combining.

The CHAIRMAN: There is.

Dr. McVAIL said that the point was that the Committee referred to it as "its suggestion." The matter had been before the Faculty time and again, and if it could have been done it would have been. The paragraph seemed to imply that the two Bodies of Scotland had never wanted to unite until Mr. Bryant's Committee drew attention to the matter. It was the idea that it was the Committee's suggestion that was the offensive part. Both the Bodies had considered the matter, and found they could not unite under the present Dental Act. They had taken the highest legal advice, and were told the diploma would not be worth anything. Each Body must conduct its examination independently, and give its diploma.

Mr. Bryant said it was pleasant to find the two Colleges in Scotland were seeing with the same eyes as the Committee. He was sorry he did not know of that fact before, but it did not alter the value of the Committee's suggestion, and he did not think it would be so offensive to the two Colleges to leave the suggestion as it was now, as it would be to withdraw the recommendation which they themselves maintained was a just one, only it was made at a wrong time.

Dr. HERON WATSON said that if the reasons why it was dropped were given, it would be all right. As it stood he looked upon it as nothing short of an impertinence.

Dr. MacALISTER pointed out that the Committee were justified in putting anything they liked into the report. The Report had not been adopted, but only inserted in the Minutes.

The CHAIRMAN asked Dr. Watson if he still wished to take a vote on his resolution.

Dr. WATSON: No. He thought Mr. Bryant would have at once requested permission to withdraw the paragraph, because it was really of no importance. At any rate it need not appear in the re-prints of the programme. The whole matter had been postponed for consideration, and he sincerely hoped that if in the warmth of the debate the Committee did not see fit to withdraw it, they would do so later on.

Mr. BRYANT said he would do so.

The CHAIRMAN thought that would be the better way. Mr. Bryant would again refer to it and show how the colleges themselves had thought of the amalgamation, and found they were prevented from doing so on account of its not being consonant with the Act.

Mr. BRYANT said that had he been informed of the matter before it could have been introduced into the Report, but it was quite new to him. The two Colleges in answering the recommendations of the Committee never alluded to it at all, but spoke of it as a recent subject. They never gave the Committee to understand for one moment that it had been suggested before.

Dr. WATSON said that when the matter came up at the meeting in May, and the motion he had moved was referred again to the bodies, he had given a good reason why it was so. He had told Mr. Bryant the matter had been attempted immediately after the passing of the Dental Act, but that it was found impossible to carry it out.

The CHAIRMAN said that in bringing up the new report, Mr. Bryant would probably refer to the matter. He understood Dr. Watson would not press his motion.

Dr. HERON WATSON said he would not.

On the motion of Dr. MacALISTER, the Council resumed. The Committee formally reported to the Council, that it had agreed to Dr. MacALISTER'S agreement, which became a substantive motion.

Dr. HERON WATSON then moved the following resolution—"That an honorium be voted by this Council to Mr. Tomes, together with the best thanks of the Council, for the Inspection he has made, under the direction of this Council, of the Dental Examinations of all the Bodies granting Dental Diplomas, and for his Reports upon these Examinations, and upon the Requirements of the Curriculum in the case of each of the Bodies granting a registrable Diploma in Dentistry, and that the Council resolves that the amount to be awarded be remitted to the Executive Committee for determination." He said the motion explained itself. It was the least thing the council could do in acknowledging the very generous action of Mr. Tomes, who had freely given his services without any charge or recompense at all. They had received from him ample reports upon the examinations, and his review of the circumstances of educational examination, and were glad to have an opportunity of acknowledging his services.

Dr. McVAIL seconded the motion which was carried unanimously.

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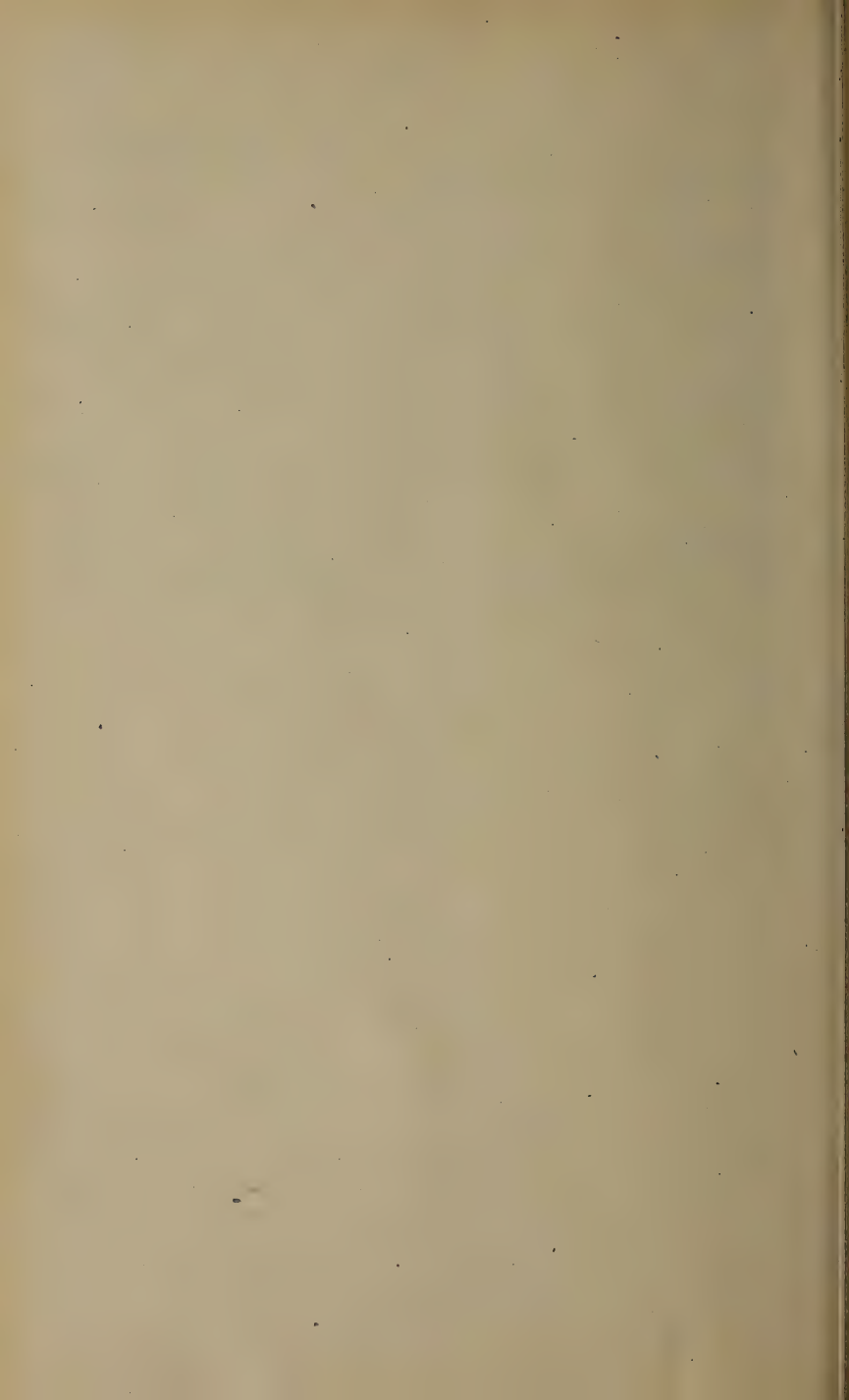
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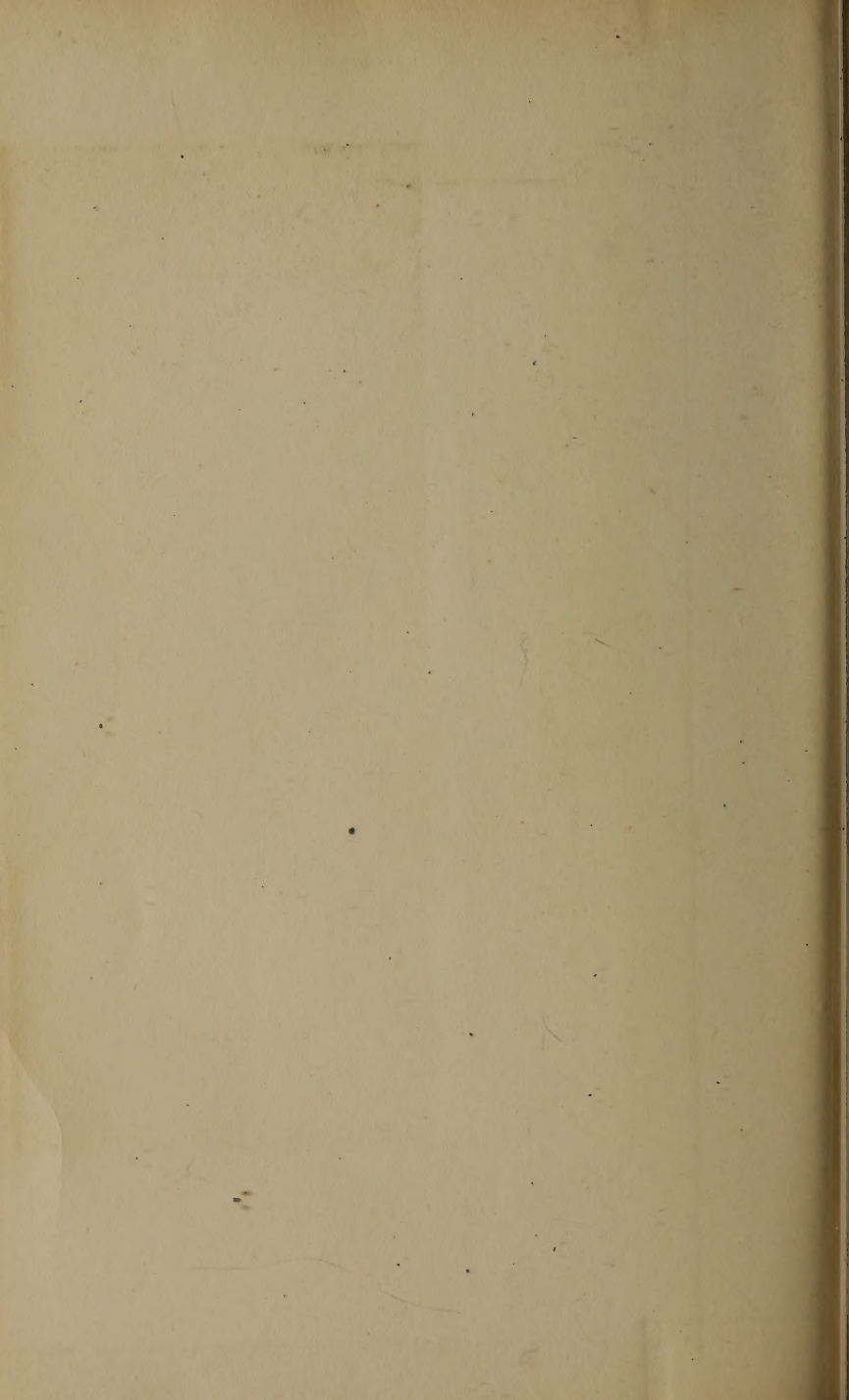
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